

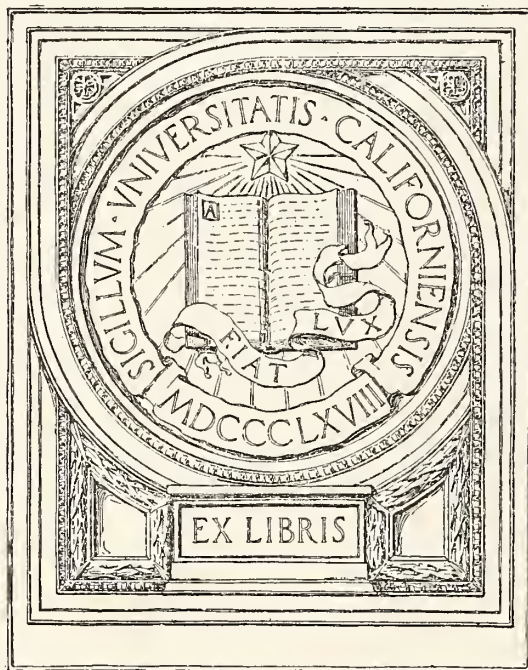
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# Colorado Medicine

# The Journal of the Colorado State Medical Society

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1920

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# Colorado Medicine

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## Editorial Comment

### DIAGNOSIS BY JURY.

The recent completion of the Blackwood trial compels reflection upon the system at present employed in Colorado of legally determining a lunatic's insanity.

In this trial, as the reader doubtless remembers, Don P. Blackwood, a paranoiac lawyer, was found insane by a lay jury in the Denver county court. During the past five years Blackwood has appeared twice before lunacy commissions and three times before the Denver county court to be tried for insanity. The lunacy commissions, consisting of alienists, have found him insane, but till the recent trial the lay juries have failed to uphold the medical diagnosis. Thus Blackwood, although insane, remained at large, and endangered the lives of unoffending citizens. During the past five years Blackwood's various trials and mis-trials have constituted a medico-legal fiasco.

The question naturally arises whether a lunatic should exercise the right of appeal from a commission of medical experts to a jury of laymen. What does the layman know about insanity? What does he know about medicine in general? The world would laugh aloud if it should behold a jury of butchers and grocers examining a defendant's lungs, and yet this same world accepts with equanimity the spectacle of a lay jury rendering a diagnosis in the highly specialized field of psychiatry.

Doubtless the lay world has a sneaking idea that it is competent to diagnose a case of insanity, for it feels that as the trial proceeds it can watch for the lunatic to foam at the mouth, or bite the judge, or loop the

loop in open court. But unfortunately for the jury most lunatics are of the non-looping order, and the most dangerous lunatics are apt to appear the most rational. And so it happens that the jury's criteria of insanity very often fail.

The diagnosis would be difficult enough for a jury even if a straight-forward inquiry were made into the issues involved. But as a rule no such straight-forward inquiry is held, for in the average trial the clear-cut issues are quickly obfuscated by the expert testimony, erudite physicians being introduced to emphasize their points of difference rather than their points of agreement.

Then the difficulties of the jury are further enhanced by the legal formulas and jargon that confuse the procedure. Learned counsel objects to the introduction of evidence already introduced. The judge sustains the objection and naively tells the jury to unhear what it has already heard. Or the objection is over-ruled, and learned counsel takes exception to the ruling and begins jockeying for a re-trial. Or perhaps counsel finds a witness's evidence to be damning and irrefutable, and so attempts to discredit him on something a little foreign to the evidence, such as his wife's religion. If his wife has no religion, it is as easy to brow-beat him on some other score. "The witness will tell the jury whether snow is red or green; he will answer yes or no."

And thus the trial proceeds.

It would seem better to turn loose a troop of clowns in court to arrive at a diagnosis with their slap-sticks. Their antics would be no more "immaterial, incompetent, and irrelevant" than much of the verbal buffoonery of the legal procedure. At best the court trial is little more than a personal encounter between the opposing lawyers, and



in the contest of these wordy gladiators truth and justice may be buffeted from court.

A law court is no place in which a diagnosis of insanity should be made. Insanity is not a crime, it is a disease; and a case of insanity is one for study by a physician and not for trial before a judge. It is an anomaly that when a man has been found insane by a commission of physicians, he is still legally competent to appeal his diagnosis to a judge and jury. This seems to be an aberration of the law.

Fortunately the situation in Colorado may be easily remedied. The state legislature has already authorized the establishment of a psychopathic hospital for the study and treatment of mental diseases, but thus far no appropriation for the purpose has been made. This appropriation should be urged upon the legislature in order that our mentally sick may be better cared for, and in order that legal diagnoses may be made by the permanent staff of the hospital. Appeal from such diagnoses should then be possible only to a commission or jury of physicians.

C. S. B.

### THE MYSTERIOUS SPLEEN.

There is perhaps no organ of the human body which arouses the curiosity of the investigator of human physiology and pathology more than does the spleen. Because of its size it is not easily overlooked and by its aggravating tantrums it is continually calling attention to itself. Is it an upstart of big outcry and little real importance or does it play a grave rôle in metabolism, or in resistance to infection? Its one macroscopic reaction in disease seems to be enlargement with occasional migration and injury attending its increased size and weight. In some of the bacterial infections it waxes large and recedes with the passing of the disease; in other diseases, as malaria, it may remain permanently enlarged. It may be apparently the seat of primary parasitic invasion, or it may react incidentally to invasion elsewhere. Microscopically its pathology is varied.

Its most obscure reactions are those at-

tending the various anemias and leukemias, blood dyscrasias in some of which it is not yet settled whether the splenic condition is primary or secondary—a problem whose solution would have important bearing upon the advisability of splenectomy. In some of these conditions, there is splenomegaly with enormous leucocytosis; in Gaucher's disease, there is enlargement and a leucopenia, with presence in the spleen of syncytia of large oval cells, peculiar to that condition; and the classification of splenic diseases in general is still confusing and insecure.

The normal functions of this organ are thought to be concerned with red blood cell formation, at least in the fetus, and red cell disintegration, yet when it is removed other tissues take on that work with apparently little trouble. It is not a true gland. No "internal secretion" has been authoritatively attributed to it. It swells with stomach digestion, but does not contribute digestive ferments so far as is known. It has rhythmical contractions of about one per minute during stomach digestion, losing 18 per cent of its volume with each contraction. Histologically, it suggests relationship with the lymphatic system, yet, as stated, it seems to have some functional relation to digestion, and it empties its blood into the portal vein.

Pearce and Pepper in 1914 showed that in splenectomized dogs the fatty marrow of the femur changed to red marrow in six to twenty months. As regards any protective function, Clifford W. Wells found in 1918 that there was no variation in reaction of the leucocytes to the injection of dead bacteria in splenectomized and nonsplenectomized rabbits, while Charles H. Frazier states the clinical experience of finding bronchitis and pneumonia common complications of splenectomy and affirms that susceptibility to infection is to be reckoned with at least until compensatory function is established elsewhere in the body.

In order to determine definitely whether removal of the spleen lowered an animal's resistance to infection, Morris and Bullock lately splenectomized thirty-six rats and removed a testicle by the abdominal route in thirty-six control rats, and then let them all be exposed to chance laboratory infection

nuder observation for several months. When an animal of either group died, one of the other group was killed and antoposies performed on both. It was then observed that the splenectomized animals almost invariably died before the controls, and that the death rate among them was 80.5 percent as compared with 38.9 percent in the control rats. The tissue changes were characteristic of rat plague and were found nearly always in the animals that died spontaneously, not at all in the controls which were killed.

A second series of two groups of seventy-two rats each was treated similarly, but none was killed. After two months the spontaneous mortality record was 29.2 percent for the orchidectomized group (normal rate for stock laboratory rats) and 84.7 percent for the splenectomized. The record in this series at the three weeks period was seven deaths of castrated as against thirty-six deaths (50 percent) of splenectomized rats.

A third series of young rats, eighty-eight in each group, was operated upon as in the previous series and immediately given subcutaneous injections of a predetermined sublethal dose of a culture of rat plague bacilli. In the castrated rats, the death rate was 22.7 percent (normal); in the splenectomized, there was the enormous rate of 87.5 percent with a hastened date of death. The results in a fourth experiment like the third, but with old rats, gave even more striking contrasts.

These experimenters show that under ordinary laboratory conditions "the spleen" (in rats) "then must in some way help to protect the animals against infection, since removal of another organ of equal size and weight by a similar operative procedure caused no impairment of the defensive mechanism". They conclude that while rats may get along fairly well without a spleen in the absence of infection, the reverse is the case when bacterial invasion occurs, and "that the spleen normally aids tremendously in resisting infectious processes in rats, and that its removal temporarily robs the body of its resistance until such a time, at least, as compensatory processes will have had a chance to reestablish this."

Inasmuch as the spleen in man is quite a large and active organ and shows no sign of degeneration or rudimentary state, the investigators are probably right in stating that it is not improbable that the human body, deprived of its spleen shows a similar increased susceptibility to infection.

In past experiments and observations in splenectomy, it has been difficult to determine how far any subsequent infection was due to the debilitating effect of the operative procedure per se. Morris and Bullock seem to have answered that question rather decisively.

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## Current Comment

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WILLIAM OSLER.

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A good mind, wide sympathy and interest, industry, thorough training, and the broadening and stimulating influence of varied environment united to make William Osler the most prominent physician of his time. Born a dozen miles east of Detroit, July 12, 1849, he took his academic course in Trinity College, Toronto, graduating in 1868 and four years later received his medical degree at McGill University, Montreal. Two years he spent in Vienna, Berlin, and especially London, and returned to Montreal in 1874 to be Professor of Institutes of Medicine in his alma mater. Here he taught physiology for ten years, and studied pathologic anatomy in the post-mortem room.

In 1884 he came to Philadelphia to succeed William Pepper as Professor of Clinical Medicine in the University of Pennsylvania. Here he extended his acquaintance with the leaders in the medical profession of America; and, probably under the influence of Weir Mitchell, and from his studies in the Orthopedic Hospital, wrote his first important work on the "Cerebral Palsies of Children" in 1889. The same year he left Philadelphia, to become Professor of Principles and Practice of Medicine in the Johns Hopkins University at Baltimore, and Physician in Chief to the Johns Hopkins Hospital. Here was done his great work in the teaching of medicine, and the international reputation it brought him led to his call



to the Regius Professorship of Medicine in the University of Oxford.

His facetious quotation of Trollope's suggestion that men ought to be chloroformed at sixty (he was then fifty-six), seized on by the press, was given world-wide publicity, which was so disagreeable that for years afterward any allusion to it was very irritating to him. But it made his name familiar to millions, who never had heard of the solid work he had done in the advancement and teaching of medicine. When, in 1911, he was included in the list of those knighted by King George for distinguished service to the Empire, he became one of the group including Allbutt, Gowers, Johathan Hutchinson, Anderson Critchett, and Lord Lister, that help to keep the English titles of nobility still a real honor in the world, and a source of political strength to the British Empire.

His great books were the "Principles and Practice of Medicine", first Edition in 1902, and the "System of Medicine", seven volumes, 1907-1910, which he helped to write and edit. But we must not forget his more strictly literary and humanistic writings, such as "Aequanimitas" and "An Alabama Student and Other Essays"; nor his devotion to the advance of the profession through the organization and extension of medical libraries.

It was as a teacher, writer, editor, compiler, and organizer, that Osler rendered his great services to the medical profession. His broad view of the function of the physician and his high ethical ideals made his influence everywhere as wholesome as it was effective. His death, December 29th, was due to pneumonia and empyema, reported to have followed influenza. It will be a matter of deep regret to all familiar with his writings; and more keenly felt by those who had enjoyed his personal friendship.

EDWARD JACKSON.

## MEDICAL EXTENSION WORK BEGUN.

As far as can be learned at this early date, the graduate teaching program, to quote the "long-distance" words of Secretary Epler, has "gone off with a bang". Engagements

seem to have been filled on schedule and much interest shown at the meetings both by attendance and attention.

The following change in the roster has been announced:

Dr. Saling Simon replaces Dr. J. R. Arneill.

Dr. W. M. Spitzer replaces Dr. J. G. Maxwell.

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## ACIDOSIS.

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At a recent meeting of the Medical Society of the City and County of Denver, the scientific program was given over to a discussion of the interesting condition, acidosis, from the laboratory, surgical, general medical, and pediatric standpoints. The papers and discussion have seemed to the editor to be of sufficient general interest to warrant their rather full digest which appears in the Denver society proceedings, this issue.

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## Original Articles

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### WORKINGS AND IMPROVEMENTS OF THE HARRISON ANTI-NARCOTIC LAW.\*

A. G. DINGLEY, Denver,  
Representing the Collector of Internal Revenue.

I have been requested to present this subject to you briefly in order that we may get a few valuable suggestions which may be transmitted to the Commissioner at Washington in connection with the treatment of drug addicts who will be deprived of the use of morphine, under the Harrison Act, as construed by the Supreme Court. I think, perhaps, the best thing for me to do will be to read a letter from the Commissioner addressed to "Collectors of Internal Revenue, Revenue Agents and Others Concerned", which is as follows:†

"The enforcement of the Harrison Narcotic Law, as amended by the Revenue Act of 1918, in the light of the recent decisions of the Supreme Court of the United States has produced a condition with regard to the treatment and care of narcotic addicts that calls for exceptionally careful and

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\*Address delivered at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1919.

†Only the more essential parts of this letter are here reproduced.



rational handling. The vigorous enforcement of this law must be carried out in such a manner as not to produce unwarranted suffering on the part of addicts.

"You have noted that the constitutionality of the Harrison Narcotic Law has been clearly upheld, and that the Supreme Court has held that it is unlawful to furnish a person popularly known as a dope fiend with narcotic drugs for the purpose of satisfying his appetite for the drug as an habitual user thereof and not in the course of the regular professional practice of medicine and in the proper treatment of disease. It was also held that an order for narcotics issued by a practitioner to an habitual user thereof, but not in the course of professional treatment in an attempted cure of the habit, but for the purpose of providing the user with narcotic drugs sufficient to keep him comfortable by maintaining his customary use, is not a prescription under the law, and that the practitioner who issues an order under such circumstances, as well as the druggist who knowingly fills such an order, has committed an indictable offense.

"The decision of the Circuit Court of Appeals, Eighth Circuit, in the Thompson case, . . . further held that a physician who dispenses narcotics not in good faith for the purpose of securing a cure of one suffering from an illness, or to cure him from the narcotic habit, violates the law; and affirmed the conviction of a physician who was charged with furnishing narcotics to an addict in decreasing quantities, claimed to be in an attempt to cure addiction, but where it was shown that such physician did not personally attend the addict or give him personal attention sufficient to show that he was practicing in good faith.

"The Oliver case involved the sale of a so-called exempt preparation under Section 6 of the Act, to-wit: paregoric, not as a medicine, but for the purpose of evading the intentions and provisions of the Act by supplying addicts with said preparation to satisfy addiction. Judge Woods charged the jury to the effect that whether the paregoric was legitimately sold as a medicine, or was dispensed with the intent of evading the purposes for which this Act was passed, was a question of fact to be decided by the jury, and that it made no difference if the officer who bought the paregoric did not intend to take it himself, provided the defendant sold it for the purpose of administering to an addict. In brief, if paregoric was sold for that purpose, 'then the offense was complete' and the defendant 'would be guilty'.

"You have also been furnished with Treasury Decision 2879, revoking Treasury Decision 2200. The important part of Treasury Decision 2879 is the second paragraph, reading as follows:

"The Act of December 17, 1914, as amended by the Act of February 24, 1919, permits the furnishing of narcotic drugs by means of prescriptions issued by a practitioner for legitimate medical uses, but the Supreme Court has held that an order for morphine issued to an habitual user thereof, not in the course of professional treatment in an attempted cure of the habit, but for the purpose of providing the user with morphine sufficient to keep him comfortable by maintaining his customary use, is not a prescription within the meaning and intent of the Act. *U. S. v. Doremus*, No. 367, October Term, 1918, T. D. 2809."

"In view of the emergency already precipitated in certain districts the following suggestions, which are subject to modifications through further interpretation of the law by the courts, are submitted:

# 1. Use of Narcotics in the Treatment of Incurable Disease, Other Than Addiction.

"With reference to persons suffering from a proven incurable disease such as cancer, advanced tuberculosis and other diseases well recognized as coming within this class, the reputable physician directly in charge of bona fide patients suffering from such diseases may, in the course of his professional practice, and strictly for legitimate medical purposes, prescribe narcotic drugs for the immediate needs of such patients, provided said patients are personally attended by the physician and that he regulates the dosage himself. The prescriptions in such cases should bear the endorsement of the attending physician to the effect that the drug is to be dispensed to his patient in the treatment of an incurable disease.

"While the primary responsibility rests upon the physician in charge, a corresponding liability also rests upon the druggist who knowingly fills an improper prescription or order whereby an addict is supplied with narcotics merely for the purpose of satisfying his addiction.

# 2. Aged and Infirm Addicts.

"Cases will come to your attention where aged and infirm addicts suffering from senility, or the infirmities attendant upon old age, and who are confirmed addicts of years standing will, in the opinion of a reputable physician in charge, require a minimum amount of narcotics in order to sustain life. In such cases prescriptions to meet the absolute needs of the patient may be written and filled without involving a criminal intent to violate the law. Even in these cases every reasonable precaution should be exercised to prevent the aged and infirm addict becoming the innocent means whereby unauthorized persons may engage in the illicit use and traffic in these habit-forming drugs. Prescriptions in this class of cases should bear the endorsement of a reputable physician to the effect that the patient is aged and infirm, giving age and certifying that the drug is necessary to sustain life.

# 3. The Ordinary Addict.

"One of the principal difficulties in administering this law will arise in the case of the ordinary addict who is neither aged or infirm nor suffering from an incurable disease. Mere addiction alone is not recognized as an incurable disease. It is well established that the ordinary case of addiction yields to proper treatment, and that addicts can be taken off the drug and, when otherwise physically restored and strengthened in will power, will remain permanently cured. The average addict does not believe this and it is symptomatic with him to have a fear and distrust of any treatment or cure. Wherever the occasion presents itself, the hope of successful treatment should be instilled in the minds of the unfortunates addicted to this terrible habit.

"The law as construed by the Supreme Court holds it to be a crime for any person, including practitioners, to furnish an addict with narcotics for the mere purpose of satisfying his cravings for the drug. The enforcement of this law as thus construed presents a problem attended with serious difficulties. The ordinary addict, when suddenly deprived of the drug to which he is addicted, suffers in an extreme manner both physically and mentally. In this condition he may become a menace to life and property and practically a public charge. Therefore, it must be recognized that at present the care and treatment of such unfortunate addicts is primarily a problem to be locally handled by the municipal and



state authorities. It is generally recognized that the indigent sick of a community are public charges therein, and that such immediate care and treatment as is required should be furnished by the local authorities. A project is under consideration looking toward the assistance of the United States Public Health Service in the institutional care of these addicts, but no specific appropriation for this purpose has as yet been provided by Congress.

"Collectors and internal revenue agents should confer with each other and with the United States attorneys in their respective districts and divisions regarding the handling of local emergencies as they arise, and should arrange conferences with the local authorities, including boards of health, for the purpose of establishing at the earliest practicable date public clinics where relief may be afforded in conformity with the law. Clinics of this character have already been established in certain cities, notably New York, New Orleans and Memphis.

"When any of these contemplated steps have been taken the collector should advise the bureau in detail of the plans put in operation in order that in the near future some uniform program may be adopted throughout the United States. It is thought that it will not be difficult under the management of a reputable physician appointed by the local authorities to examine, register and properly treat ordinary addicts residing in his community by reducing the dosage to the minimum and preparing and encouraging the addict to enter a hospital, sanitarium or institution wherein he can be taken off the drug and properly treated with a view to curing his addiction.

"Care should be exercised by investigating and field officers of this bureau not to interfere with or harass the reputable physician, who in the course of his professional practice and for legitimate medical purposes only is in good faith treating a bona fide patient for the cure of addiction, nor the official representative of the local authorities who is administering narcotics to addicts in a proper manner to meet their immediate needs to prevent collapse. At the same time, it must be understood that the so-called reductive ambulatory treatment does not meet with the approbation of the bureau for the obvious reason that where narcotics are furnished to an addict who controls the dosage himself he will not be benefited or cured, and in many cases he may, by deceiving or importuning a number of doctors, secure a supply for peddling purposes.

"The field officers of this bureau are expected to investigate and report every illicit trafficker in narcotic drugs, including any peddler, smuggler, manufacturer, wholesaler, retailer and practitioner, or other person, who wilfully violates the intent and provisions of this law as construed by the courts. In no other way can this menace to the manhood of our country be eliminated. The commercial or so-called "morphine doctor" must be kept under proper surveillance, and in every case where clear evidence of his wilful intent to violate this law is procured no compromise will be made, but his vigorous prosecution will be insisted upon.

"DANIEL C. ROPER, Commissioner."

This, in brief, presents the subject and the principal points. As I understand it, it is desirable to get some valuable views from you gentlemen which can be presented to Washington whereby these addicts may be

treated by you in connection with the local authorities, since a great many of them will be taken care of by you and will yet be a charge upon the city and county.

## DISCUSSION.

**G. E. Neuhaus, Denver:** The question of morphine addiction is a very great one, as all physicians know. In the course of our medical work we come in contact with the unfortunate addict and have the opportunity to see the effects, the fearful effects, of his addiction. The legal definition, or laws passed, and the administrative rulings of the department with reference to the Harrison law are clear cut and apparently simple. However, in practice, the subject is not simple, because we cannot decide offhand what we are permitted to do under the law. To illustrate this, I would like to mention an instance that came under my observation about a year ago. A young man came to my office saying that he was an addict, that he had been taking morphine for a number of years, that he was an actor, temporarily in Denver with a troupe of actors who were performing at the local theater, that their engagement would end in a few weeks, that they were going only to Salt Lake and then to San Francisco, and that he had the promise of his manager that at the termination of his engagement the manager would have him enter an institution for the treatment and cure of his addiction. He was without morphine, had been without the drug for twenty-four hours, and was pretty much on the ragged edge. I felt that to deny him the morphine would mean that he would have to give up his engagement, that he probably would lose the support of his manager, who would naturally resent his failing him at an important time, and that, from a humanitarian standpoint, and from the standpoint of public policy, it would be best to supply him with morphine. I knew, however, that the ruling of the department was that no addict was to be supplied with morphine in order to satisfy his craving, so I communicated with the office of the internal revenue collector, and was given permission to furnish a prescription for morphine to this man while he was in Denver. Now, the ruling of the Supreme Court says that to attempt to reduce the quantity to patients and addicts gradually from time to time by giving a man a prescription for diminishing amounts when he comes to the office is unlawful. I believe that is right, that is as it should be, because no addict can be cured by coming to the physician's office and getting a diminishing amount of morphine from time to time. When he gets his stated quantity reduced to such an extent that he feels the pinch, he will go to another physician and enlist his services and get him to prescribe, and in this way he will make up the deficit in his daily allowance; and as I have been told by the field agents of the department, sometimes addicts go to two or three physicians at a time under the pretext of taking a gradual reduction cure.

The only way to cure an addict is to place him in a hospital where he can be fully controlled and where his environment also can be controlled; and I think that would be the ideal plan. Now, however, when an addict comes to us and we tell him that he must go to a hospital he tells us that he cannot do this without some preparation, and a little reflection will prove that that is true; he cannot go to his employers, or others, and say,



"I am an addict; I have to go to a hospital and get treated", because that would injure his standing in that community; so he has to make some preparatory arrangement, and he needs a few days' time. Now, I think under these conditions, where a man is willing to take a cure for his addiction, that we should be permitted to furnish the addict with the necessary amount of morphine to tide him over this period, or this interval. I believe, however, with that exception, that we should not have the right to prescribe. I think the right to prescribe morphine to addicts that are not subject to incurable diseases, or infirm, the right to prescribe for relief or for any other purpose, should be reserved for the men who fill a public position, that is to representatives of the Public Health Service, or to county physicians. Only in this way will it be possible to keep track of the addicts and guard against their going from one doctor to the other with the same tale and simply gratifying the appetite. It has been suggested that it might be feasible to require them to take their prescriptions to one particular druggist in a community and let this one druggist fill all prescriptions that are given to addicts, and that in this way it would be possible to keep track of them and to see that they did not duplicate prescriptions. I do not think that is advisable, because, in the first place, it is possible for an addict to go to two or three doctors and get prescriptions under assumed names, or to send for a prescription by a friend to this specified druggist, and in that way get a much larger supply than he is entitled to have; furthermore, a great many of these addicts are poor, they are destitute, and will neither pay you nor pay the druggist for the drug. So, all these cases, I think, should be referred to the Public Health Service representative or to the county physician for treatment, and he alone should have the right to prescribe for an addict.

The plan that is under consideration by the Public Health Service to provide institutions all over the country for the treatment of addicts is a very good one, but, of course, that is away off in the future. In the meantime, I think it is possible for a community, like ours, for instance, to provide a place somewhere in the county where the appointments could be very simple. Not much apparatus is necessary; all that is needed is a man who knows how to treat these addicts and who has the necessary psychiatric knowledge to be able to distinguish between normal and abnormal individuals; there is also needed a corps of nurses; and, of course, the place to run the institution. I think a very few thousand dollars would fit out an institution of this kind, and the running expenses need not be excessive. Some such arrangement would provide immediate relief in this very urgent and serious situation. We hear it sometimes said that an addict is not entitled to relief, that he has gotten into this habit through his own fault, and that he might just as well suffer the consequences of his vice. I cannot take that stand. A great many of the addicts have become addicts, not through viciousness, but through circumstances. Very often they have been to some physician who has been prescribing morphine for them, and they are weak in mind and body and need relief. Anyone who has seen an addict in the throes of the symptoms will be unwilling to leave such a man without relief, and the condition is not always without danger. I remember seeing, during my career, a patient who I think could have been saved if he had been given the necessary dose of morphine to relieve his collapse, that being the only remedy which

will relieve the collapse that comes in the course of the use of the drug. The length of time necessary for a patient to stay in a certain institution varies. Some men need a long period of building up, reconstruction; others are cured in a very short time, and permanently cured. It depends on the incentive the patient has to get well, and on circumstances in general. I remember one case of a woman who had been treated on three different occasions, once in my institution and twice in the county hospital, and who went back to the drug, and when her husband committed suicide, the mental shock she sustained was the means of curing her almost at once, and permanently, of her addiction.

**G. A. Moleen, Denver:** I think if a vote were taken of the entire medical profession, it would be unanimous in the approval of any plan which is going to make for the relief of these poor unfortunates, as much as we might feel that it is an imposition on the medical profession to have to pay for the privilege.

Since this discussion has taken the direction of merely the addicts, I will speak only from that viewpoint at this time. In the first place, I think we will readily appreciate from the accurate description in general of addicts, or the average addict, given by Dr. Neuhaus—and which I think a person who has seen them will recognize—that the first and most important thing of all is to place within the reach of these addicts an institution or a haven which is easily accessible, that is so situated that it can be reached without notoriety and can be easily entered by those who entertain a serious desire of discontinuing the habit. The second thing, and I think equally important, is the security that such an institution provides. It should not allow the individual parole privileges, and should not allow access of the friends or relatives or acquaintances of the individual. It should, in other words, provide for isolation. The reason for this is obvious to every medical man here. And the next point is the hygienic surroundings and comforts that it will provide. Those three conditions should be satisfied at any place at which the cure of the addiction is undertaken.

We have heard a good deal said of the sudden withdrawal of narcotics from those who have been accustomed to them. Most of this comes from the penal institutions and I must say that the most exalted opinions from the heads of these institutions have reached us—they say, "When they come in as prisoners, and are addicts, we put them in a cell and let them fight it out for themselves." That is all right; perhaps the head of a penal institution who feels it is his duty to invoke a certain amount of punishment can do this, but in the eyes of the medical profession the human side is uppermost, and I think we will all desire to supply relief. As Dr. Neuhaus has said, this period of time, until they are able to struggle for their own existence, is the important factor to be considered. I am quite sure that we all feel that the institution is an urgent need, like a good many other institutions which we feel the need of in this city, as well as this state and also other states; but if we are going to grapple with this matter, with people who are unable to control themselves, who cannot be trusted and whose friends cannot be trusted, it requires a place which is inviting, a place easy of access, a place that is secure and that offers something in the nature of a temporary commitment, in order that we shall be legally enabled to keep those



individuals a sufficient length of time away from their vice.

**A. C. Magruder, Colorado Springs:** Unfortunately, there are a good many narcotic addicts among the medical profession. This comes to us at almost every meeting of the State Board of Medical Examiners, and it has been necessary on several occasions to revoke the license of physicians in this state on account of their use of morphine, heroin, or some other drug. Only yesterday a physician who was on probation applied to have his license restored, claiming that he was cured. Now, as one feature of this act, if it could be interpreted so that we could allow these physicians to have their licenses back, yet at the same time prevent them from using the blanks to prescribe morphine for themselves—for they come with a long argument of their destitution, of their large family and of the high cost of living and that they must have their practice in order to maintain their families—now, if we could let them practice, and at the same time not use the blanks, these blanks being withheld from them, we could, in a great many instances, trust them to go ahead with their practice, give them their licenses back; but with these blanks in their hands by which they may prescribe narcotics for themselves, it is necessary to withhold the license until we feel absolutely sure that the patient is a cure. Now, I should like to ask the speaker if we could get an interpretation of that part of the Harrison Act which would allow us to give the men their licenses back and still withhold the privilege of their prescribing the drug?

**F. R. Spencer, Boulder:** There is one feature that has not been sufficiently emphasized, and that is our hearty cooperation with the federal authorities, namely, with the collectors of internal revenue. That is absolutely essential, first, for the benefit of the addicts, and, second, for our own self-protection, because if we do not give them our cooperation in this matter, the addicts will continue to use morphine and will deceive us. They often deceive themselves, which is worse. I was in hopes we might hear from Dr. Strickler on this. One of the big problems before the State Board of Medical Examiners is to take care of these men, and some of them are members of our own profession. We need to look at this matter from a serious viewpoint. Many of us do not see these addicts often, do not see them often enough to have them firmly impressed on our minds, and we are going to consider it too lightly. Unless this problem can be handled as seriously as it deserves to be, the Harrison law, which has been one of the best laws we have ever had passed, will fall short of its mark.

**Hubert Work, Pueblo:** This discussion has wandered a little from the original direction, inasmuch as two of the speakers have spoken particularly on the treatment of morphine addicts. Both of these eminent men have recommended institutional cure. That, of course, I naturally approve of, yet, on the other hand, I think it is only fair to say to the general practitioners that they can do a great deal themselves in the treatment of morphine addicts. The treatment of a morphine or a cocaine or heroin addict is about the simplest thing I know of in medicine. Of course, restraint is necessary, but restraint can be had to an extent without institutional care. If you will allow me to describe the treatment we use, hoping that some of you will derive a little benefit from it, I shall do so. We have tried nearly everything that has come up in the last twenty years. So much mystery is thrown about the treatment recommended for this condition, some-

times by ethical men, but largely by unethical men, that it is a sort of relief to us to know that there is something simpler, and that so much of this detail prescribed is unnecessary. The Lambert treatment is good; it is ethical, but it is unnecessarily severe.

To be brief, and to keep within my time, when a morphine addict comes to us we put him promptly to bed and give him a good dose of castor oil. In the course of three or four hours we give him another dose, and continue them for two or three days, small or large, as may be necessary—it is usually small—and that will furnish all the restraint that is necessary for the time being. If there is any other treatment that will make a man wish to abandon his habits more quickly than that, I don't know what it is. After two or three days that man is physically born again; he has forgotten about his old habits, and believes at the time that if such a course of treatment is necessary to restore him, morphine has no longer any attraction for him. Aside from supporting the patient, the castor oil, ordinary common sense and nursing will restore these cases for the time being. After a man has been restored, as we call it—we never say "recovered"—and he appears to be the picture of health, then is the critical time, rather than while he is under treatment. I make these suggestions to the general practitioner in order that, if he deems it necessary or better to try the treatment at home he can find the necessary physical restraint in castor oil, and at the same time clear the field for subsequent treatment.

**O. M. Gilbert, Boulder:** Just one suggestion, along the line proposed by Dr. Moleen, of some means which are readily accessible by which patients can have themselves committed. I think we might profit by a law of Missouri, although I believe it applies only to the City of St. Louis, by which it is provided that a patient can voluntarily commit himself. He usually takes a shot of morphine and goes as quickly as he can get there, while the drug keeps his courage up, but once committed he is under restraint and can be held legally for the period of three months. I chanced to be on the staff of the St. Louis Insane Asylum and saw the working of the law, and it is excellent, in that, just as Dr. Moleen has suggested, it avoids any idea of publicity in the commitment. One does not have to go before a court to be committed—he can commit himself—but once committed he has to remain there. I think that is a provision that should be incorporated in this law.

**H. S. Henderson, Grand Junction:** I should like to ask a question. We, living over on the Western Slope, are a long way from any place where there is a hospital to take care of these cases. Oftentimes we are confronted with a very bad local condition, and, unfortunately for me, I happen to be health officer over there, and the rest of them all tell these addicts to go to the health officer for morphine. I should like to ask if there is any provision in the law that will give the local health officer more authority than any other doctor to give these addicts morphine? I have done my best to read through this law, and I cannot find in it any intimation that they have any more authority than anybody else, yet the idea is out, from one cause or another, that we have more authority, and consequently we are the ones that have the grief; and you tell the patient to go to a hospital, or go to some place where he can be taken care of, and it is four hundred miles—"Well, I have got to have some stuff to get there on, I have got to have so much, I am taking



eight grains or ten grains a day. What am I going to do to get there?" And when you give it to him, he may not ever go; so I would just like to ask if we have any more authority than any other doctor?

**Mr. Dingley, closing:** As to withholding blanks from the physician addict, as the law now stands, that would be impossible; it would be considered, probably, class legislation. There is no exception whatever in the law as to any particular class of doctors, and it gives equal authority to every physician who is registered under the state law. Whether or not that will be feasible, it would be something, of course, the courts would have to decide, and it might be well to recommend something of that sort in our letter to the commissioner; but it is also possible that these prescriptions could be checked by some local health officer before the narcotic could be prescribed. That, possibly, would be a good solution of the matter. There is nothing in the discussion here that would prevent any such method of handling cases. It seems evident that there should be some central authority which could decide whether a person was entitled to receive the narcotics under the law, or whether he really needed the narcotic for disease, or to prevent collapse, or something of that kind—that might be a good solution. In regard to the other question as to the authority of the health officer, there is a section in the law which says any local or municipal authority can purchase narcotics without official order forms, provided he is a local officer or connected with some local public institution. I believe that is as far as it goes; but he cannot prescribe any more than another physician, and I doubt very much whether he could prescribe enough to allow an addict to go any distance, or more than was necessary for immediate use of that patient. The decision of the Supreme Court has been that no one can prescribe for a patient beyond the immediate use of such patient. Now, what they would interpret as "immediate use" would be very hard to say, but my opinion would be, it would be what he would need for perhaps twenty-four hours—that is the best I can answer the question at this time.

## INDICATIONS FOR OPERATIVE TREATMENT IN CRANIAL FRACTURES.\*

O. M. SHERE, M.D., F.A.C.S., Denver.

While tremendous progress has been made during the past few years in the treatment of fractures in other parts of the human anatomy, very little unanimity of opinion exists regarding the principles of surgical management in injuries of the cranium.

Within the limits of this brief paper I shall endeavor to give the merest outline of the guiding conditions upon which either the operative or non-operative treatment of these serious injuries should be based. Towards this end a combined study has been made from a series of cases which have

come under my personal observation, as well as all the cases of cranial fracture which were admitted to the Denver City and County Hospital during the period of fifteen years, from 1904 to date. The balance of the cases were collected from the literature and makes in aggregate with the others a total of one thousand cases.

For our purpose it seems best to tabulate these fractures in two broad subdivisions, namely basal and vault. The former constitute 62½% and the latter 37½% of the entire series. Such a ratio, though contrary to the teaching of the older and many of the modern surgical text books, which tell us that the vault fractures are exceedingly more common than those of the base, will nevertheless be found to be in conformity with the present day experience of most surgeons. The figures elicited from the study showing a ratio of nearly two basal fractures to one of the vault, will bear some modification, for some of these fractures were not confined to any single region, either the base or vault, but instead were associated injuries. The larger part of the fracture, however, was in one particular region, and therefore thus credited. Of these cases, 67% were not operated and 33% were submitted to surgical interference with the following results:

Nonoperated: Relieved 41%; died 59%.

Operated: Relieved 51.6%; died 48.4%.

The word "relieved" instead of "cured" is used advisedly in this instance, since a number of patients considered as cured upon leaving the hospital were later found to be afflicted with persistent headache, epilepsy and various forms of mental derangement. These conditions, however, were more prevalent in the nonoperated than in the operated cases.

The above tabulation would indicate that the percentage of cures is somewhat larger in the operated cases. This is fully in accord with the result of a similar study made by Besley and presented before the American Medical Association several years ago.

The general mortality, however, is still appalling and certainly no credit to modern surgery. Reasons for this are not far to seek. To quote Cushing: "Anything classi-

\*Read at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1919.

fied as neurological surgery is looked upon by many of us as baffling and difficult and the feeling prevails that the ultimate functional results, after recovery from serious cranial injuries are, to say the least, forlorn."

Those of us who come in contact with these cases must admit that the tendency to avoid surgical intervention whenever possible is indeed great, because of the small percentage of cures. The percentage of patients who survive operation is, however, no real index of the value of treatment. In a large number of cases injuries are found which no surgery could cure. In others there are minor ones which would not have proved fatal, even if they had been left alone. It would therefore seem to me that the real failures are the cases in which the patient is wrongly classed as hopeless where operation might have saved his life, and also those cases in which the operation, though instituted, is performed too late. It is perfectly obvious that it is easy in this class of patients to operate too much. In many, life is hanging by a mere thread. The shock from the operation added to the already existing one is greatly to be considered. Yet on the other hand it is extremely pathetic to see on the autopsy table that a clot was clearly the direct and chief cause of death. And such instances are by no means rare even in my own series.

The problem then that confronts us is the following: Is it possible to rationalize the perplexing situation to an extent that will determine the question whether or not operative interference should be resorted to in any given case? This, in fact, is the theme and sole object of this paper.

Sharpe says: "If the patient is allowed to develop definite paralysis, a lower pulse rate, Cheyne-Stokes respiration and pulse and that appalling group of extreme intracranial pressure signs, then I agree entirely with the opinion so commonly now held that these patients 'get along' just as well without operation as with operation at this late stage, the mortality being 50% and over; but the patients with brain injuries should not be allowed to reach this dangerous stage of medullary compression due to the high

intracranial pressure. It should be anticipated by accurate diagnostic methods now known."

In order then to afford these patients possible relief, we must endeavor to decide the following in each individual case: First, the necessity of and, second, the proper time for any surgical procedure. Since the clinical symptoms and signs are so varied and frequently so confusing in these patients, it is obviously impossible to lay down ironclad rules. There exist, however, certain principles which must guide our decision as to operative or non-operative treatment.

For the prompt recognition, as well as the proper interpretation of these guiding signs, it is primarily essential that each patient should receive the benefit of a cooperative study and examination made by the neurologist, the roentgenologist and the surgeon. The first must also be well trained in the use of the ophthalmoscope, since this instrument plays a very important rôle in the diagnosis of cranial injuries.

When we consider that in these patients the subjective symptoms are of no help whatsoever, either in making the diagnosis or instituting any particular method of treatment, and also bear in mind the fact that no fracture of the skull is in itself dangerous to life, it then becomes imperative for the surgeon to consider the seriousness of the most frequent complications, whose prompt recognition is so highly essential for the carrying out of timely treatment.

These complications are intracranial pressure and hemorrhage. The former can be ascertained with a fair degree of accuracy by the ophthalmoscope, which reveals an edematous blurring of the optic discs. This is to be supplemented by the measurement of the pressure of the cerebro-spinal fluid by means of lumbar puncture. Since the spinal mercurial manometer has been brought into use, varying degrees of intracranial pressure can be carefully recorded. Sharpe has estimated the normal pressure to be from five to nine mm. of mercury, so that if a pressure higher than fifteen mm. is obtained at the lumbar puncture, we know that the signs of intracranial pressure, as shown in the fundus of the eye, are con-



firmed. He states that after a consideration of the literature on the subject, and as a result of experience quite extensive, he is of the opinion that the operative treatment for selective cases of fracture of the skull showing signs of intracranial pressure is far superior to the expectant treatment and that the operation most suitable for these cases is the subtemporal decompression.

The clinical symptoms of cerebral hemorrhage are too well known to need repetition. My plea at this time is simply for its early recognition, so that operative intervention may be instituted in time. In every instance where fracture is suspected, regardless of the anatomic location, roentgenography should be employed, but in such event I would caution against exclusion of fracture because of negative x-ray findings. A few cases have come under the writer's care in which a fracture was diagnosed clinically and confirmed either on the operative or postmortem table, yet had shown negative radiographs.

As a matter of fact, an operation is indicated in every instance where there is a definite increase of intracranial pressure, whether or not there is a demonstrable fracture of the skull. The two patients which I shall show you presently will serve to illustrate this point. The first was discharged from the hospital two days after admission because of negative x-ray findings. On the following day he developed convulsions on the opposite side from the point of injury. These were from fifty to sixty in number during the twenty-four hours preceding the operation, which was performed five days after the occurrence of the trauma. At that time we found a depressed fracture with active hemorrhage from the middle meningeal artery. The second patient was at a hospital for a number of weeks in a state of mania, coupled with convulsive seizures, these symptoms following an injury to the skull by an iron ore bucket. No fracture could be demonstrated by the x-ray in this case. Upon operation a large degenerated blood clot was found encysted in the frontal lobe, the removal of which was followed by prompt recovery from all symptoms. The result of these operations you may judge for your-

selves when you examine these patients. You will also be impressed with the fact of the probable consequences had the treatment been based upon the negative x-ray findings. It is with the idea of accentuating this particular phase, that I bring these patients before you.

What I have said about x-ray is also true of blood pressure, lowered pulse and respiration rate and all the other rather crude signs of cerebral injury. While any of them may be of value in correlation with other findings, none is dependable per se.

My conclusions, which some may deem iconoclastic, are nevertheless submitted here as follows:

First: Operate whenever you have definite signs of intracranial pressure, excluding those cases of severe shock and medullary compression.

Second: Every person suffering from a basal fracture showing definite signs of intracranial pressure should be accorded a chance of recovery by a subtemporal decompression.

Regarding the technic I have nothing particularly new to offer, except to emphasize two rather important features in these operations, namely: that the dura should be opened in all decompression operations and, again, that I have found muscle tissue to possess powerful coagulating properties, and that therefore its use as a hemostatic in cranial surgery will be found most gratifying.

In conclusion I wish to express my best thanks to Dr. Eli Miller, of the resident staff of the Denver City and County Hospital, for his efforts in collecting the cases from the hospital records, thus making the study possible.

610-614 Metropolitan Building.

#### DISCUSSION.

**Leonard Freeman, Denver:** Dr. Shere has covered this subject so completely that it leaves but little for me to say, and I think I prefer to occupy the few minutes allotted to me by speaking on another aspect of the question. The amount of trephining at the present time, together with that which has been done in years past in civilized communities, is trifling compared to the trephining done for fractures in this western hemisphere five hundred to two thousand years ago. When Pizarro invaded Bolivia, Chile and Peru he found a wonderful civilization, with large cities and great

armies. They fought with spiked clubs, the spikes often being multiple. They were heavy, and not only made single depressed fractures of the skull, but sometimes multiple fractures, and as they fought a great deal the fractures were numerous. It was natural that they should develop the surgery of the skull, with trephining. In a large number of skulls that were exhumed from the old graveyards in Bolivia, Peru and Chile, two percent have been trephined for fractures and other things. Our present trephining is nothing at all compared to that. In one specimen, a mummy, preserved in the Smithsonian Institution in Washington, there is a definite paralysis on one side of the face with a trephining at the seat of a fracture on the opposite side of the skull. These trephinings were done in a way peculiar to the South American continent. They sawed out a square piece of bone an inch square, perhaps, or more. This was done with a rough piece of flint, set in a wooden handle and braced against the chest. The operator held the patient's head between his knees, operating through a crucial incision in the scalp. They may or may not have had an anesthetic. Now, I want to call attention to something which is to me of extreme interest, because it shows that the operation of trephining was sometimes deliberately done for decompression, as Dr. Shere has advocated in his paper today. I know this, because there is a skull in the Museum of Anthropology in San Diego, a skull which shows in the cerebellar region the bulge of a tumor. The tumor is very definitely outlined in the skull, about as big as half an orange. A decompression had been done upon the skull. The whole history was written right there. I was permitted to take the skull out and examine it, and could read the history as plainly as if it were written in a book. Two surgeons probably worked upon that skull. One started to do a decompression operation and began just back of the left ear. He made an attempt to saw through the skull with a piece of flint, but unfortunately he got into a large sinus. The patient bled, evidently, and he stopped. The patient got well from this operation and the bone smoothed over, so that you could tell that it was some time before the second operation was undertaken. Then, along came another surgeon, in all probability, and possibly he said the first man didn't know how to get at it, but he could do it. So he started in the center of the cerebellar region and sawed out a square piece of bone, such as I have outlined here. He then pried out the piece of bone, leaving a little portion of the inner table on one side. On all the other skulls that were trephined there was no portion of the inner table left, thus showing that he did not have time to remove this splinter. And it was very evident why he did not have time, because right here he broke into a very large blood sinus which runs along at that point. The groove of the sinus was definitely shown, and just where he broke into it was distinctly shown. The patient died right there—bled to death on the table. I have no doubt that surgeon felt just as bad about it as the modern surgeon would. We know he bled to death because the surgeon did not have time to take out that little splinter of bone, which in every other skull was taken out. That was an operation done for decompression, as Dr. Shere advocates today in his paper. The other operation, as shown by the mummified head in the Smithsonian Institution, was also done for decompression, so that the operation for decompression was known and was practiced at that time. If you will permit me, I want to add just a few words. Another preserved skull in the San

Diego museum had a surgical dressing on it which was interesting. It was bound across the top of the head and composed of a roll of cotton in gauze. This "cheese cloth" is made of cotton thread and is exactly the same kind of gauze we use today—and that was fifteen hundred or two thousand years ago. There is not the slightest difference in the gauze, unless it be in favor of the Peruvian gauze over ours, because it is finer. Also there was a heavy string wound repeatedly around the head from the frontal region to the occiput. It was wrapped eight times around the head and was hitched up behind by some kind of a "diamond hitch" which I could not quite unravel. One could pull behind on a portion of the cord and tighten up the whole thing—the bandage over the head, the strings around the forehead, and the strings over the top of the head. This was evidently a method for controlling hemorrhage.

**Dr. Shere, closing:** I am indeed grateful to Dr. Freeman for taking up the paleopathology of these cases. There is no subject in the entire history of surgery that equals in interest the trephining operation, which, as you know, dates from most ancient times. In the discussion, mention was made of an old skull specimen showing evidence of hemorrhage from a sinus. This prompts me to add a few words relative to the subject of hemorrhage during cranial operations. Experimentally, at least, I have been able to demonstrate the efficacy of muscle tissue as a hemostatic. About a week ago I deliberately opened the longitudinal sinus in a dog and succeeded in stopping the hemorrhage by gently packing the sinus with muscle tissue. The dog has thus far made an uneventful recovery. If this can be duplicated in the human, then the mortality from these accidental operative hemorrhages will be greatly reduced, if not entirely prevented.

### **SPLenic ANEMIA IN CHILDREN\***

**Report of a case of Banti's disease in a boy of six years; splenectomy and recovery.**

**J. W. AMESSE, M.D., Denver.**

Among the numerous problems of internal medicine still awaiting solution, few afford greater interest for the clinician than those associated with disorders of the ductless glands. And with equal truth we may assert that of these peculiar elements of our economy, whose physiological and pathological processes have been the source of such herculean labor in recent times, none has proven more baffling in its study than the spleen. As Howell fittingly observes, "with all that has been said and written of the spleen, we are yet in the dark as to its distinct function". Unquestionably concerned with the production of red corpuscles before birth, it is assumed by many that this function ob-

\*Read at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1919.



tains throughout life. By others it is supposed to destroy red cells and to be connected in some way with the production of uric acid. As a matter of fact, about all that is definitely known may be summed up in a brief paragraph. We know that it may be removed from the body without damage; that it has periods of contraction and relaxation during digestion and that these movements, rhythmical in character and maintained by the intrinsic musculature of the organ, serve to sustain the circulation independent of general arterial pressure (Roy).

We may justly assume, too, that from the presence of fatty acids, cholesterin and nitrogen extractives, active metabolic changes of some kind occur in the spleen (Howell).

If doubt and confusion, however, punctuate our slender knowledge of its physiology, how much greater a source of contention and speculation is its pathology! All writers agree that the spleen may be involved in any or all of the acute infections; that it reacts in varying degrees of enlargement to the toxins of malaria, syphilis and the graver diseases of the blood. It may wander from its normal site into any portion of the abdomen; may suffer spontaneous or accidental rupture and may occasionally harbor infarcts or abscesses. But these are all secondary disorders. Actual primary affections of the spleen are summed up in a brief page or two of our text books, and their consideration in more extensive works is only too frequently dismissed with scant attention. If we eliminate such rare conditions as sarcoma and other new growths, among which may be included the form of chronic endothelioma described first by Gaucher, our attention is focused on a disease possessing exceptional interest alike for the internist and the surgeon; of obscure causation and bizarre manifestations, known to the English speaking profession as Splenic Anemia.

During the twenty years that the syndrome characterizing this peculiar affection has borne the brunt of repeated investigation, it has been frequently asserted that neither the clinical nor the pathological findings could justify its recognition as a distinct disease entity. In fact we may discern, in the voluminous literature that has

developed about this controversy, two schools of thought; one endorsed by Osler, Lyon, Sippy, Banti and others maintaining that we have, in the condition commonly known as splenic anemia, all the elements of an independent and primary derangement; the other, represented by Wentworth, Warthin and Stengel, contending that it is simply a manifestation of some subtle infectious process. Without recounting the intensive studies and the well sustained arguments which have marked this difference of opinion we may infer that most authorities now accept the classification of Osler and recognize in splenic anemia an independent disease.

Known under various titles, it may be described as a disorder marked by extraordinary chronicity, showing progressive enlargement of the spleen and further characterized by secondary anemia of extreme grade, reduction of the white cells, a decided tendency to hematemesis and in the later stages, cirrhotic changes in the liver with ascites, jaundice and pigmentation.

This final involvement completes the picture of Banti's disease, which may be termed the last phase of splenic anemia. Sippy finds, in his exhaustive review of the literature, that an accurate description of the disease was made by Woillez in 1856, but that the first case was recognized by Gretzel in a baby ten months old, 1882. Banti reported three cases in 1883 and pursued such a searching investigation of the terminal phenomena that the fully developed disease still bears his name.

The factors concerned in its etiology have thus far eluded every search. Cultures and inoculations have been consistently negative and every theory respecting its causation has been proven untenable. It is much more common among males; it occurs at all ages and in any climate. In all, about one hundred cases have been reported.

The pathological anatomy, as discussed by Banti, is most distinctive. The spleen may weigh from 1 to 1.5 kilograms; the shape is normal and the organ smooth and free from irregularities, although the capsule is thickened. There is a general fibrosis of the entire gland, involving not only the capsule

but the reticulum of the pulp and the Malpighian bodies. Occasionally endothelial masses are seen in amounts sufficient to simulate neoplasms. In the case reported by Stengel this endothelial proliferation dominated the entire pathological survey.

In cases which are far advanced, there is noted an interlobular cirrhosis of the liver resembling the changes produced by chronic alcoholism. Banti observed, in one of his cases, sclerotic changes in the splenic and portal veins. Warthin, in his brilliant monograph, describes a chronic thrombophlebitis of these veins, with stenosis and calcification. He believes that the fibroid changes in the spleen were directly due to the congestion thus produced and that the altered portal circulation is responsible for Banti's syndrome in probably every instance. Lossen found a similar condition in a case studied in 1914.

The lymph glands are not especially involved in splenic anemia nor does the bone marrow show changes other than those accompanying severe anemias.

In the blood profound alterations are seen. There is a secondary or chlorotic anemia, the hemoglobin falling to forty or even twenty per cent; the red cells being reduced to one-half or even one-fourth the normal count. There is a pronounced leucopenia, in marked contrast with the findings in practically every other type of splenomegaly, but the differential count is not much disturbed. Normoblasts are infrequent and poikilocytosis not common.

The symptomatology of splenic anemia is dependent upon the stage of the disease in any given case. It may be summed up in general, however, under its most striking features. (1) Splenomegaly: Practically no other disease save, possibly, leukemia is accompanied by such enlargement of the spleen. It may extend beyond the median line into the right half of the abdomen and be seen and felt as low down as the spine of the ilium. Through mechanical interference with the circulation and, thus indirectly, with the functions of neighboring organs, we may find hemorrhages, especially from the stomach, ascites—common in advanced cases—digestive disturbances. There is usu-

ally some edema of the ankles; jaundice is common even without recognizable lesions in the liver; the heart may be dilated and hemic murmurs persist for long periods. An odd feature of many cases has been the pigmentation of the skin, found either on the face or trunk and resembling the discoloration of Addison's disease. (2) Chronicity: The disorder may continue for many years, even up to twenty-five, and is not incompatible with a fair amount of work. (3) Anemia, which follows the splenic enlargement instead of preceding it, as in other diseases. In addition, in considering the symptoms of splenic anemia, we may note that the urine is usually free from gross pathological elements and the temperature normal.

The diagnosis rests upon the general picture above outlined. The clinician has to differentiate splenic anemia from all forms of infection in which an enlarged spleen is accompanied by anemia: from leukemia, Hodgkin's disease, pernicious anemia and neoplasms. He must exclude the various forms of cirrhosis of the liver and especially eliminate the Von Jaksch syndrome which so greatly resembles it, in infancy. This condition, however, may be considered as the reaction of the infantile blood-forming organs to infection. It is always associated with rickets which is believed to be the predisposing factor. There is involvement of the lymph glands and an increase in the white cells.

Treatment: Once the diagnosis is established the case belongs to the surgeon, as logically and definitely as does one of appendicitis or of exophthalmic goiter. Osler contends that the brilliant results which have followed operative procedure constitute a final argument in viewing splenic anemia as a clinical entity. Certainly the toxic process must be confined wholly to the spleen for its removal to be followed by such prompt and permanent improvement. In any event, the disease is invariably fatal when treated medically. If splenectomy is done early, the mortality is low; if the operation is long deferred, many cases succumb, especially among children.

Of eighteen operations at the Mayo Clinic, twelve were in excellent health from six months to seven years afterward. In forty-



seven cases collected by Graham, the mortality was about ten per cent. The preparatory treatment is important. Transfusion should be employed one or two days before operation, and the hygienic management before and after should embrace all agents tending to conserve the vital functions.

**Case history:** The following case is submitted as one presenting the syndrome described by Banti in the terminal stage of splenic anemia:

A. C., boy, age six years, born in Denver and a resident of this city since birth. His father, an Italian, died of influenzal pneumonia in February, 1919; his mother died of hemorrhage during childbirth four years ago. This parent was but sixteen years of age when the patient was born, and there is a clear history of an obscure disease, accompanied by pronounced anemia from her ninth to her twelfth year. She was transfused from the husband at the time of the puerperal hemorrhage without benefit. There is a second child, a girl, now five years of age, in excellent health.

The patient was a strong, vigorous child at birth weighing nearly twelve pounds, was breast fed for the first year and at that period suffered a severe attack of measles. His next illness was at three, when he was taken to the Children's Hospital suffering from anemia and great weakness. No specific diagnosis was made at the time but the patient has been continuously ill ever since and it may be fairly presumed that this was the beginning of his present disability. After his mother died, the home was broken up and the boy lived around among relatives and friends, finally coming under the observation of the juvenile court which undertook to provide for him permanently. At the time of my examination at the Children's Hospital on May 27th, 1919, the child presented a most pitiful appearance. The face, thorax and limbs were greatly emaciated; the skin jaundiced and pigmented; the expression one of pain and exhaustion. In striking contrast with the remainder of the body, the abdomen was markedly distended and in the left flank one could readily make out a smooth mass extending from a hand's breadth above the pubes to the left costal

border, and across to the median line. A notch could be easily outlined near the upper margin. The liver could not be felt. The thorax presented evidences of rickets, in the pigeon breast and the lateral depressions. The apex beat was in the fifth interspace. An anemic murmur, varying in intensity and systolic in time could be heard at the base; the pulse was weak and irregular. Examination of urine, negative except for bile. The blood was pale and watery. Red cells, 1,300,000; hemoglobin, 30%; white cells, 5,300. The Wassermann test was negative except at one time in October, 1918, when one test was positive and another negative.

In view of the boy's extreme weakness, it was considered wise to defer operation until he could profit by careful nursing and the exhibition of iron and arsenic. On June 6th, 1919, transfusion of 300 cc. human blood was performed by Dr. Buchtel and on the following day he was operated by Dr. J. M. Perkins, who succeeded in removing the spleen very expeditiously and with the loss of little blood. The organ weighed about two pounds and when drained of blood measured 17 cm. in length, 7 cm. in width and 7 cm. in depth. Unfortunately the spleen was not put into fixing fluid for forty-eight hours and when finally examined the structure could not be accurately determined. The patient left the operating table free from shock and made a fairly rapid convalescence. On June 21st, two weeks after the operation, his red count had tripled and the leucocytes numbered 11,400. The hemoglobin had risen to 55%.

On discharge from the hospital to the Orphans' Home, Denver, the red cells numbered 4,700,000 with hemoglobin 70%, and on September 25th, 5,200,000 with hemoglobin 80%. The leucocytes now run to 13,000, the differential count being as follows: Polynuclears, 47%; small lymphocytes, 38%; large mononuclears and transitionals, 8%; eosinophiles, 5%.

The patient goes to school and enters into all the games eagerly. He has gained twenty pounds in weight, eats and sleeps well and gives every promise of living out the natural span of life.

## DISCUSSION.

**O. M. Gilbert, Boulder:** Speaking of the function of the spleen, as Dr. Amesse has done and as our authorities do in general, and in vainly attempting to look it up, one is reminded of the humor of the once-famous anatomist and neurologist, His, who, in quizzing one of his classes, asked a young student what the function of the spleen was. He scratched his head a moment and said, "Oh, I knew it, but I just forgot it." His said in his droll way, "Just think, you are the one man that ever knew the function of the spleen and now you have forgotten it." That is the attitude of mind you are left in when you are attempting to discover the function of the spleen. It is still a question, and it does seem now that the spleen, which is apparently such an important organ, in some respects at least, entering so much into our clinical pictures, can be removed without permanent appreciable effect upon the human economy at all. There is just one temporary effect—we have an anemia accompanied by a leukocytosis. I think I am at liberty to quote from Dr. James Murphy of the Rockefeller Institute, from a personal communication, that there is a decided lymphocytosis reaching its height at a period three to four weeks afterward; and incidentally, may I remark that Murphy has shown by a large number of charts that along with this curve of increase in leukocytes there is almost a parallel curve in the resistance to tuberculosis. This has a bearing upon another point, which I will not discuss here. My own experience in splenic anemia is limited to one slightly doubtful case, a case which I will report to you very briefly. This history was written the twenty-third of January, 1909, nearly eleven years ago: A boy ten years of age had been pale for about three months. No enlargement of the spleen had been noted. On the twelfth of December he complained of being sick, tired, achy and short of breath, and vomited frequently—in a few instances, vomiting blood. He was confined to bed for a few days and then got up and went out and went to school and to delivering papers. When I saw him on the twenty-third I found the heart dilated, the lungs normal, the liver apparently a little contracted, the spleen extending to one inch below the costal margin—a few weeks later, an inch and a half below the costal margin. The hemoglobin was twenty percent; reds, not recorded; whites, 2000, 4000. I had in mind typhoid fever when I saw the boy, and noting the absence of leukocytosis I did not follow the leukocytes further, at that time. The boy vomited bloody material; one time he vomited ten ounces of it and he passed some blood in the stool. His temperature was up to 100° on one day, and most of the days it ran 99°, 98° and 98½°. I put the case temporarily on arsenic, and for some reason he recovered; whether the arsenic did it or not, I do not know, but he recovered; and I notice his hemoglobin record: 40 percent in one month, two months later 45, and six months later 85. He feels well. A systolic basal murmur still exists. I made an examination seven years later and I noticed the heart murmurs had disappeared and the spleen was just barely palpable. I believe the case was one of splenic anemia. It is borne out by the enlargement of the spleen, and absence of leukocytosis. I believe I might take issue with Dr. Amesse on one point, that death is inevitable without operation. Some cases in childhood do seem to recover.

**F. P. Gengenbach, Denver:** I had the pleasure of seeing this case last fall. These cases are

rather rare, but I have seen in the last two years three cases of what seemed to be, as far as we could determine, true splenic anemia. The clinical findings in this case certainly point to a definite case of Gaucher's disease, which is differentiated from the ordinary enlargement of the spleen by the fact that in the ordinary enlargement we have a simple hyperplasia. In Gaucher's disease there is an accumulation of new cells, and these cells are very typical, so it is unfortunate that the specimen was so impaired that it could not be pathologically examined. These cells are definitely characteristic. They are large cells with small eccentrically situated nuclei and with slightly granular cytoplasm. They also appear, according to Holt, in the bone marrow and lymph glands. The lymph glands are not very much enlarged. In Gaucher's disease we usually have some enlargement of the liver also. The disease is characterized by a peculiar brownish discoloration of the skin, and in some cases also by a yellowish brown wedge-shaped discoloration of the conjunctiva, just to either side of the cornea. This case I saw first on the twelfth of September in 1918. I also saw it last spring before Dr. Amesse saw it. It was brought to the medical school clinic and the findings were then not materially different from my first examination, and at that examination just a year ago we noted this peculiar dusky color which the foster mother said had lasted about two years. The eyes were slightly jaundiced. He also at that time gave me a history of hematuria the year before. The blood findings at that time, as my memory serves me, were hemoglobin 50 percent, red cells 2,000,000, and white cells 4,600, a decided leukopenia. The differential count was practically normal, except perhaps a little more increase in the polymorphonuclears than we ordinarily find at the age of six. The liver as I found it was about one inch, or a good finger breadth, below the costal margin, so it was my impression that the liver was somewhat enlarged. The Wassermann was indefinite. I referred the child to Dr. Buchtel, advising at that time that the boy should be transfused, and that then a splenectomy might be attempted. As Dr. Amesse has told you, medicinal treatment promises little or nothing. Most cases have been temporarily improved by splenectomy, but whether they are permanently improved or not is a question, as their resistance to infections seems somewhat lessened by the absence of the spleen.

**Dr. Amesse, closing:** Dr. Gilbert is to be congratulated upon the recovery of his case, because all the evidence we have at hand points to the failure of medicinal treatment in cases of splenic anemia, which, after all, are borderline diseases. It is an extraordinary disease, and I think where the clinical picture can be studied it is progressive. We are justified in resorting to a splenectomy where skillful surgery can be secured.

**Cancer Control Education in Colorado.** In reviewing Dr. W. T. Mayo's paper delivered before delegates to the American College of Surgeons at the meeting recently held in New York City, the editor of the Denver Post appends to the article this single sentence:

"It is a matter of pride that Colorado is one of the foremost states in the spreading of knowledge regarding this horrible disease."

This indicates very clearly the value of the educational work which has been done in this state by the Colorado Committee of the American Society for the Control of Cancer.



## News Notes

Dr. D. Macdougall King is desirous of finding a purchaser for a Spencer microscope, an electrical centrifuge, a Tycos sphygmomanometer, a sinus lamp, some miscellaneous office and surgical supplies, and a small library of medical works. Those who have read the doctor's work, "The Battle With Tuberculosis and How to Win It", will be interested in knowing that Dr. King has by no means lost his personal battle with that disease, but is retiring from the limited active practice he has carried on for several years on account of increasing limitations occasioned by progressive muscular atrophy, which first manifested itself a year and a half ago.

Dr. C. D. Spivak of Denver left that city December 28th for New York, where he was to join other members of the joint distributing committee of the Jewish War Sufferers' Relief Fund. He expected to sail for Europe on January 10th, but did not know of his exact destination further than that he would visit all the devastated regions in Europe with the exception of Russia and Ukraine. Dr. Spivak's recent appointment to the committee mentioned was announced in the daily press in December.

Dr. E. W. Lazell, formerly of Denver, now of St. Elizabeth's Hospital, Washington, D. C., has announced a course of twelve free lectures to be given in Washington on "The Analytic Psychology of Human Behavior as Applied to Mental and Social Hygiene". His many warm friends in Denver will welcome this news of his activities.

Dr. Chas. A. Powers is spending the winter at Ormond Beach, Fla. Mail will reach him in care of the Ormond Hotel.

Dr. B. A. Filmer has removed from Colorado Springs to Denver.

The American Congress on Internal Medicine, in conjunction with the American College of Physicians, is to meet at Chicago February 23 to 28, 1920. The sessions will comprise daily clinical and laboratory demonstrations in Chicago's hospitals and teaching institutions, as well as evening gatherings with addresses by men eminent in American medicine. Hotel accommodations must be spoken for at once. Information about the meeting may be obtained by addressing Dr. Frank Smithies, Secretary-General, 1002 North Dearborn street, Chicago, Ill.

The new officers of the Medical Society of the City and County of Denver are A. S. Taussig, president; W. A. Sedwick, vice president; Minnie C. T. Love (re-elected), secretary; F. P. Gengenbach (re-elected), treasurer.

Dr. C. W. Thompson of Pueblo has just completed postgraduate work in neurology in the Neurological Institute, New York, and the Graduate School of Medicine, University of Pennsylvania, Philadelphia, and has resumed his duties at Woodcroft Hospital, Pueblo.

Woodcroft Hospital, Pueblo, has just completed extensive improvements in the addition of several rooms and suites, with connecting sun porches and private baths. These new apartments have special service from a modern diet kitchen.

Major J. W. S. Cross of Telluride has ordered his **Colorado Medicine** sent to Fort Bliss, El Paso, Texas, and states that he has "signed up" to stay until next spring.

### El Paso County News.

Dr. H. C. Moses is in Chicago visiting clinics.

Dr. L. H. McKinnie has returned from Kansas

City, Mo., where he read a paper before the Western Surgical Association.

Dr. H. R. Shands and Dr. J. R. Haney spent the holidays in their former homes in Mississippi.

## Medical Societies

### COLORADO OPHTHALMOLOGICAL.

The regular meeting of the **Colorado Ophthalmological Society** was held on November 15, 1919, in the assembly hall of the Medical Society of the City and County of Denver, Dr. W. A. Sedwick presiding.

J. M. Shields, Denver, presented for Melville Black, Denver, a boy of eleven years, resident in Colorado, who was suffering from typical vernal conjunctivitis, although after the diagnosis had been correctly made by Dr. Herriman of Alamosa the parents had taken the child to another surgeon who had been treating the case as one of trachoma. Discussed by W. C. Finnoff, J. W. Patterson and Edward Jackson.

H. R. Stilwill, Denver, again presented a patient shown to this society in December, 1918, on account of traumatic staphyloma of the sclera due to a fall. Discussed by J. R. Robinson, F. R. Spencer, G. F. Libby, Edward Jackson and C. E. Walker.

J. A. McCaw, Denver, again presented a woman of twenty-nine years who had been shown to the society three years previously on account of a syphilitic neuroretinitis. Two months ago she had returned with a defect of the upper half of the left visual field, and the right eye showed a retinitis proliferans. Discussed by Edward Jackson.

E. E. McKeown, Denver, presented a boy whose left eye had been penetrated by a pen-knife held in the hand of a schoolmate. The knife had passed through the sclera in the ciliary region. Suppuration had rapidly developed in the vitreous, and at the time of demonstration, several weeks after the injury, the pus showed as a yellowish mass behind the lens and bulging in the wound. It was necessary to remove the eye. Discussed by W. H. Crisp, H. R. Stilwill, E. T. Boyd and C. E. Walker.

W. C. Finnoff, Denver, presented a man of twenty-six years who, in February, 1918, while in the United States Army, had been operated upon for pterygium in the right eye. Nine days after the operation solid silver nitrate had been applied by the army surgeon to the operated area, and after this the eye was kept bandaged for twenty-one days. Dr. Finnoff had operated, so far with excellent results, for relief of symblepharon of the lower eyelid to the pterygium. Discussed by E. T. Boyd, J. A. Patterson, E. L. Strader and W. C. Bane.

W. C. Finnoff, Denver, presented a man of twenty-four years whose left eye had been struck with a baseball in France last March. There was a deep pigmented hole in the center of the macula, and about a half disc diameter to the temporal side of the macula there was a rupture of the choroid running vertically about four disc diameters in length.

W. C. Finnoff, Denver, presented a woman fifty-one years of age whose left cornea showed several deep-seated corneal opacities in the substantia propria, and whose right eye had developed a nodule on the pupillary margin of the iris, the condition being suspected to be of a tuberculous character. Discussed by Edward Jackson.

F. R. Spencer and C. L. LaRue, Boulder, pre-

sented a man of forty-three years who had been operated upon for a very large cholesteatoma of nasal accessory sinus origin which had extended into the orbit. (See Original Articles, Colorado Medicine, December, 1919.)

E. T. Boyd, Denver, showed a case of enucleation in which a Mules vitreous sphere had been inserted in Tenon's capsule, and described the method which he employed for uniting the wound margins in case of evisceration followed by insertion of the vitreous sphere. Discussed by J. A. Patterson and G. L. Strader.

C. O. Eigler, Denver, presented a woman who, three months previously, had had pain in the left eye and forehead when doing close work, and who said her sight began to fail in the left eye at that time; the case being suspected to be possibly one of pituitary disease. Discussed by G. L. Strader.

J. A. Patterson, Colorado Springs, reported a case of iritis with the formation of granuloma of the iris, in which the diagnosis lay between syphilis and a focal infection. Discussed by W. H. Crisp.

J. A. Patterson, Colorado Springs, showed an old ophthalmoscope "nach Doctor Liebreich", who had invented the instrument in 1855. Discussed by Edward Jackson, who believed that this instrument had been the one most widely sold in this country until the perfection of the Loring Ophthalmoscope about 1877.

WM. H. CRISP, Secretary.

#### CITY AND COUNTY OF DENVER.

The regular meeting of the **Medical Society of the City and County of Denver** was held Tuesday evening, December 2, 1919. President Jackson was in the chair.

Dr. Alpha M. Chase and Dr. Morrow D. Brown were elected to membership in the society.

The scientific program began with an address by Dr. Philip Hillkowitz on the "Nature and Determination of Acidosis". Dr. Hillkowitz said formerly the literature upon the subject was only seen in special journals devoted to biological or physiological chemistry, but at present the literature is very general. He said it has been thought by some that acidosis means that the body fluids become acid. The body fluids never become acid, unless in the very last stages of life, but are always alkaline. The term acidosis refers to the hydrogen ion concentration. In order that this might be understood, he explained that acidity depends upon the number of free hydrogen molecules or free hydrogen ions or hydrogen concentration. It is measured by the concentration of free hydrogen ions in water, which is one gram to ten million liters of water. So, in one liter of water there is  $1/10,000,000$  of a free hydrogen ion, which is written  $10^{-7}$ , because it is 10 raised to the seventh power and is indicated by C. H., or hydrogen ion concentration. Later, for convenience, the minus sign was omitted and the sign P. H. was substituted for C. H. The body fluids are P. H. 7.45 or 7.40 and are constant either in health or disease. He spoke of the different methods of determining the hydrogen ion concentration of the blood. One method is by the use of indicators as phenolsulphonphthalein. He described other methods and apparatus used for the purpose. He had prepared some test tubes to show the results of the tests by means of an indicator, which were passed around. Dr. Hillkowitz went on to say, when acetone bodies are eliminated by the kidneys it is not acidosis, but acetonuria or ketonuria. The alkaline reserve of the body is the sodium

bicarbonate which neutralizes the acid carbon dioxide and the fixed acids. The body resistance to acidosis consists of the bicarbonates, the phosphates, the proteids and the ammonium salts. These have what is termed a buffer action and furnish what may be called tampons to absorb the acids. If we know the alkaline reserve of bicarbonate, we know how near the patient is to danger. Thus, by an analysis of the blood we obtain the proper knowledge. When we have improper elimination from the kidneys or retention of carbon dioxide, the reserve of alkalinity is reduced. One method (Van Slyke's) to determine the amount of reserve alkalinity is to take a known quantity of blood plasma and obtain the amount of  $\text{CO}_2$  which will combine with it. The normal amount should be about 63 percent per volume and below 50 percent would mean acidosis. Another method is to determine the amount of alkalinity which remains. In all of these tests where the blood is obtained the patient must have been at rest; no tourniquet should be applied, or, if applied, should be removed as soon as the needle is in the vein, to prevent any venous congestion, and the blood obtained must not be exposed to the air.

After the meeting was over, Dr. Hillkowitz demonstrated the various apparatuses used in these tests.

Dr. Tracy Love next gave a paper upon "The Clinical Aspects of Acidosis". He said at present we realize that acidosis is an extremely common condition and detecting it in its modified forms may solve many obscure problems. He gave the causes as follows: A diet too rich in fats or too poor in basic salts; nephritis; chronic cardiac disease; certain stages in diabetes; anesthetics; Graves' disease; extreme fatigue; toxemias of bacterial or intestinal origin; sudden deprivation of food as in acute indigestion, acute infections, or starvation resulting from surgical operations. Acidosis is accompanied by persistent vomiting and nausea, due to stimulation of the vomiting center, as well as irritability of the gastric mucosa. The vomiting has occasionally been so severe as to become fecal in character, simulating intestinal obstruction. There is dyspnea or rather hyperpnea without cyanosis. The respiratory rate has been as high as eighty per minute. There is a dry, coated tongue, with a foul or sweetish acetone odor to the breath. There is extreme thirst, with a parched mouth, sunken eyes and ashy color of the skin, which is also dry. The heart action is not greatly increased, but the blood pressure is low and the pupils dilated. At first there is excitability; later, drowsiness, followed by stupor. The urine usually contains acetone or diacetic acid. In the chronic variety there is burning in the throat and stomach. These cases have various digestive troubles, constipation or diarrhea, fatigue on slight exertion, fatigue of the eye muscles, nervousness and dry skin. Cases with nausea, vomiting, dry skin and slight dyspnea, when treated with alkalies, soon show ketone bodies in the urine. These cases usually belong to the class attributed to incomplete combustion of the fatty acids. These patients should be deprived of all fats and oils, especially before operations. Mild cases of acidosis may be controlled by the use of alkalies by mouth or bowel. The severe or dangerous cases should be given intravenously a sodium bicarbonate solution with or without glucose. To use too large quantities of the solution is dangerous. The best results are obtained by using frequent injections of 250 to 300 mls of a five percent solution.

"The Relation of Acidosis to Surgical Proceed-



ure" was given by Dr. C. F. Hegner. He said that acidosis is a very important factor in many acute medical or surgical illnesses, and is little understood by the majority of physicians. Acidosis is an impoverishment of the body in bases or their precursors plus an accumulation of the acid products of metabolism. The physiological maintenance of the normal alkaline balance is maintained by the complex process of limiting the production of acid products, conserving the alkaline reserve, and increasing elimination. Acidity inhibits the functions of the cerebral cortex and stimulates the functions of the medulla in which are situated the centers of respiration and circulation. These centers constitute the essential mechanism for the neutralization of acidity. The alkaline reserves of the body are located in the circulating blood and to a far greater extent in the cells, intercellular substance, and the fluids of the tissues. Because of this the blood and tissues of the body are capable of maintaining within wide limits a neutral relation. In acidosis alkalinity is decreased and acidity increased in far greater degree than the usual methods of examination indicate. Laboratory methods may estimate the alkaline reserve of the blood and the content of alveolar air, but as yet no practical method has been devised whereby the total available alkaline reserve of the tissues can be estimated. He thought laboratory reports, since they tell only a part of the truth, are not true indicators of the condition present. The factor of safety lies in knowing, then conserving the available alkaline reserve. Since this cannot be known, the alkaline reserve should be conserved by normal supply of fluids, proper food, and sufficient amount of regular sleep. The hydrogen ion content of the blood is increased by all conditions which interfere with the proper oxidation process of metabolism. Some of these are: intense emotion, extreme muscular exertion, exhaustion, inhalation anesthesia, asphyxia, surgical shock, injury, hemorrhage, anemia, alcoholic intoxication, toxemias and starvation. The available alkaline reserve is diminished by: infections, injections of strychnine, disturbances of the thyroid and excessive oxidation. Physiological restitution of the available alkaline reserve is effected by proper diet and deep, unbroken sleep. It is important to know that the hydrogen ions in the blood are not increased by the narcosis of opium or its derivatives. Morphine in large doses disturbs the mechanism of neutralization of acidity to a marked degree. Given before the balance of alkalinity is lost, it retards the development of acidosis—it is then beneficial. Given after the balance is lost it interferes with the restoration of alkaline balance—it is then detrimental.

He then followed by giving the symptoms of acidosis and explaining their causes. He also called attention to the fact that an unfavorable or even fatal issue may occur in an otherwise successful operation because of the intervention of this condition. As a prophylaxis, in surgical conditions, give plenty of water, citrous fruit juices, sugar (unless contraindicated), honey, avoid starvation, allay anxiety or fear, reduce protein in the diet and give vegetables or their juices; encourage elimination, but do not deplete the patient before or after operation. A careful qualitative and quantitative urinalysis should be made. Sufficient alkali should be administered (particularly in children, the exhausted, or starved) to render the urine alkaline not only to litmus but one of the other indicators. More is not necessary, and by some is considered dangerous. In pronounced anemia or in severe hemor-

rhage, blood transfusion is a decided advantage. He went on to state, it is not always possible to do all that is necessary to prepare one for the additional burden of a surgical operation, but it is possible to safeguard the patient when the operation is begun. He advises morphia prior to anesthesia in cases of great fear or tendency towards acidosis; gentleness, care and precision in handling the tissues during the operation, and he thinks nerve blocking of advantage. The post-operative care consists in giving adrenalin; the alkaline, glucose; saline solution per rectum, and water freely by mouth when tolerated; for vomiting, alkaline lavage. Keep the patient warm and give pituitary extract if needed to raise the blood pressure. When acidosis has developed give into the circulation the alkaline, saline, dextrose solution.

Dr. F. P. Gengenbach next gave an address upon "Acidosis in Children". He said it occurred in children as acetonuria, after starvation or an anesthetic, during infectious diseases and intestinal disorders. In infants it is sometimes found in cases of malnutrition or marasmus and in the later stages of gastrointestinal disturbances. The symptoms are vomiting, air hunger, peculiar color of the skin without cyanosis, irritability which may be followed by stupor and later by coma. The baby will cry as if in pain; there will be sinking in of the eyes and fontanels; mouth and tongue dry with labored respiration; loose, watery stools; scanty, highly acid urine, which contains albumen and sugar; also there is leucocytosis. The fever may be moderate or very high. Acidosis is more prevalent in neurotic children and more often seen in the winter time. These children have periodic vomiting spells, highly acid urine, may be constipated and often have been taking an excess of fats or carbohydrates. Diseased tonsils are sometimes a cause. In these cases avoid meats in the diet and push fruits and vegetables. In the way of treatment, withdraw food and give glucose and soda. Usually fruit juices, dry toast well chewed, or weak tea are best tolerated at first. The tolerance of alkalis is very high. Fifteen grains of bicarbonate of soda may be given at a time. Glucose and sugar may be given by mouth. In infants a bicarbonate of soda solution can be given into the superior longitudinal sinus through the fontanel or into the external jugular vein. In extreme cases citrated blood may be given.

Dr. C. E. Edson opened the discussion. He called attention to the fact that acetonuria and acidosis are not the same, and he also spoke in favor of the old-fashioned gruel as a diet. He said, in the case of acidosis, glucose is given for nutrition and not to neutralize the acids, but to prevent further acidosis from the fatty acids. He divided the causes of acidosis into: first, overproduction of acids; second, pathological production of acids, and third, improper elimination of acids. Dyspnea, he said, may be either cardiac, renal, or due to beginning acidosis, or extremely high blood pressure.

Dr. O. M. Shere, in his discussion, said that acidosis following an operation was often due to improper care beforehand. One of the elements was too heavy catharsis. He advocated rather the use of enemas. He called attention particularly to the character of the tongue, which, he said, was not only dry, but also red and glossy.

Dr. Emanuel Friedman said when a child is seen with uncontrollable vomiting, with pain and even tenderness in the abdomen, one should think of acidosis, after eliminating acute appendicitis or intestinal obstruction and possibly meningitis.



He cautioned against too free use of the alkalies in order to render the urine alkaline, as there might be danger of inducing tetany or edema. He thought it better to obtain the carbon dioxide tension of the alveolar air rather than take the urine as a guide. He suggested injecting a bicarbonate of soda solution into the peritoneum, rather than into a vein. These children, he said, should be given bicarbonate of soda, and the fats and the yolk of the egg be withheld.

Dr. A. M. Moore related an interesting history of three of his patients with diabetes who died rather unexpectedly and suddenly from acidosis.

Dr. G. A. Moleen said the subject of acidosis is not yet thoroughly understood. He spoke of the acidosis caused by high altitudes being due to retained carbon dioxide which stimulates the respiratory center and causes an increased rate and depth of breathing. He also called attention to the fact that in acidosis the saliva is sometimes acid. He said the question might arise which of the acid bodies were causing the trouble, as carbonic acid may be replaced by acetic acid. He mentioned some of the obscure causes of acidosis as: faulty digestion with splitting up of the fatty acids, the symptomatic acidosis in disorders of the pituitary, pancreas and suprarenal glands, and the acidosis due to extreme muscular exertion.

Dr. Mary E. Bates spoke of hypothyroidism as a cause of acidosis.

MARY R. STRATTON, Reporter.

The regular meeting of the **Medical Society of the City and County of Denver** was held December 16, 1919, with President Jackson presiding.

Dr. O. M. Shere exhibited two dogs upon which he had operated in order to demonstrate that the pleural cavity can be opened without collapse of the lung if the air be admitted gradually. In one dog the chest was entered in the usual way, with the result of a collapse of the lung. In the other dog he removed a portion of two ribs by doing a subperiosteal resection in order that the pleural cavity should not be entered. He then introduced a needle into the pleural cavity, making a minute opening which would admit the air gradually. He then waited for seven or eight minutes and introduced a little larger instrument, again waiting from five to eight minutes. He continued this process until the opening was large enough for a canula, and later on for a tube. No collapse of the lung resulted. Dr. Shere also showed x-ray plates of the chests of the two dogs.

Drs. William A. Adams and Harold L. Hickey were elected to membership in the society.

The society passed resolutions requesting the city to change the law in regard to venereal diseases to conform with the state law. The following committee was appointed to confer with the mayor and city council: Drs. Davis, Taussig, Sewall, Moleen, Lyons, Hillkowitz, Meader, Levy, Hall and Jackson.

The scientific program was a symposium on "Focal Infections in Practice".

Dr. Robert Levy gave the focal infections occurring in the tonsils, nose and accessory sinuses. He thought the focal infections of the head were the most important and their importance was in the following order: teeth, tonsils, and the acute and chronic infections of the accessory sinuses. He said there were two ways of definitely proving infections: by bacterial and animal experimental study prior to operation, and by the results of operations. He said the systemic infections occur as an absorption from a local disease or from an infection of an organ, as in the case of the tonsils. These focal infections are

distributed by means of the blood stream and the lymph stream, and toxemias develop from the foci of infection.

Dr. Wm. H. Crisp gave an interesting paper upon the results of focal infection on the eye. He recited the histories of nine cases, some of which were of long standing (one being thirty years), which were due to focal infection from the teeth. He recounted the remarkable recovery of these cases after the removal of the foci of infection.

Dr. S. Fosdick Jones spoke next of the focal infections bearing on the diseases of the bones and joints. He named the focal infections in the order in which he considered they were responsible for diseases of the bones and joints. The order is as follows: tonsils, genitourinary tract, accessory sinuses, syphilis, intestinal tract, and last, the teeth and alveolar processes. He thinks the rôle of the teeth and alveolar processes in systemic infection has been greatly overvalued. In his practice he has had only one case which he attributed to that cause.

The prostate and adjoining parts were considered by Dr. Oliver Lyons as his part of the symposium. He thought the prostate, also the seminal vesicles and Cowper's gland, held an important place in focal infections. He said that gonorrhea was not the only cause of focal infection in this region. The infections may come from diseases such as typhoid fever or tonsillitis, and from infections along the urinary tract as from the streptococcus or colon bacillus. He emphasized the fact that in case of doubt as to the seat of focal infection one should think of the genitourinary tract.

Dr. Cyrus L. Pershing discussed focal infection as it would affect the nervous system. He thought, in connection with the nervous system, that the teeth were the most important sources of infection, after which came the tonsils and the intestinal tract. He mentioned some diseases which are known to be due to infection, as herpes zoster and, often, neuritis. He spoke of some who thought that many of the mental conditions, especially the functional insanities, were due to focal infection. Dr. Pershing thought the extent to which focal infection entered into the cause of mental conditions was greatly overestimated in those cases.

"The Relation of the Appendix and Gall Bladder to Focal Infections" was Dr. S. D. Van Meter's subject. His conclusions, from a clinical standpoint, were that the appendix and gall bladder infections were usually secondary to a focus elsewhere, the most likely focus being the teeth or the tonsils. Infections of the gall bladder and appendix may cause neuroses and functional dyspepsias, play an important rôle in arteriosclerosis, cirrhosis of the liver, and ulcer of the stomach and duodenum. Also infections of the appendix and gall bladder may hold some relation to migraine and epilepsy, as well as arthritis deformans.

The last speaker in this symposium was Dr. Chas. N. Meader, who gave "The Importance of Mild Infections". He called attention to the classes of cases of multiple infections, which present themselves to the medical man, the difficulty in finding the primary foci and of deciding which focus should be removed first. He spoke of the chronic infections in the lungs which give rise to many mild manifestations of infection. He also spoke of the class of patients who have myalgias, mild joint symptoms, migraine and are nervous, run down and below par, who probably have some subacute focal infection causing this ill health.



He suggested that no one had yet mentioned the vaccines.

Dr. Melville Black opened the discussion by saying that no one had mentioned the connection between focal infection and disorders of the internal glandular secretions. He thought that persons with disturbance of the internal glandular secretions run along till some focal infection causes an explosion, rather than the focal infection being the cause of the disordered internal glandular secretions. He called attention to uveitis, which does not recover quickly after the removal of the infection, in which he thought the vaccines were of benefit.

Dr. T. Leon Howard called attention to the many times that focal infection occurs from the prostate, and also stated the infection might be due to many other causes besides gonorrhea.

Dr. Henry Sewall spoke of the interdependence of infections—that one infection starts another, till there is a train of them.

Dr. G. A. Moleen spoke especially of chorea, which develops in the wake of infection and has been attributed to the tonsils. He cautioned against the removal of the tonsils during the active stage of the disease.

MARY R. STRATTON, Reporter.

### EL PASO COUNTY.

The regular monthly meeting of the **El Paso County Medical Society** was held in the library of the Elks' Home December 10th. This was the annual meeting for the reports of the Secretary and Treasurer and election of officers.

Forty-three members were present and no visitors.

Drs. E. B. Liddle, F. A. Forney and Charles Moore were elected to membership.

Dr. C. R. Arnold was elected president; Dr. G. B. Gilbert, vice president; Dr. Omar Gillett, treasurer.

Dr. F. T. Stevens and Dr. W. V. Mullin were elected delegates, with Dr. J. J. Mahoney and Dr. E. L. Timmons as alternates.

A letter was read from the Metropolitan Life Insurance Company asking the county society to revoke its rule in regard to the schedule of fees for examination of life insurance applicants. The society instructed the secretary to write the medical director of the Metropolitan Life Insurance Company that there would be no change in this rule.

Dr. Magruder moved that the society adopt a resolution to the effect that no member of the El Paso County Medical Society should be allowed to consult with, refer cases to, or operate with an osteopath, or administer anesthetics for an osteopath or chiropractor. The president appointed Drs. Magruder, Shivers and Mahoney to draw up the resolution and to present it at the next meeting.

C. E. RICHMOND, M.D., Secretary.

## Book Reviews

**Practical Medicine Series; General Surgery.** Edited by Albert J. Ochsner, M.D., F.R.M.S., L.L.D., F.A.C.S. Series 1919. Chicago, The Year Book Publishers. Price of this volume, \$2.50. Price of series, \$10.00.

This Year Book of Surgery comes well up to the high standard set by its predecessors and is as the editor says, "especially rich in material

that has been produced by the surgeons who have worked with the Allied Armies."

Naturally, the Carrel-Dakin management of infected wounds comes in for added consideration, and the editor says that two claims of authors have almost disappeared: The first of them, in former years, based conclusions on the inaccurate use of solutions not carefully prepared or tested, while a second class decided adversely on hearsay and without adequate personal experience; and Ochsner finds results excellent when the method is properly carried out.

Guillotine amputation is argued pro and con. Most surgeons with extensive war experience have doubtless concluded that the operation had a fixed place in selected cases, but that at one time the pendulum swung too far in its favor. V. H. Blake, in describing an amputation shield retractor, has evidently overlooked the fact that this useful instrument was earlier devised by Monprofit of Angiers.

The terrific occurrence of gas gangrene in France is emphasized and the good work of Taylor in this distressing complication properly recognized. Tetanus, fortunately very rare, shows nothing new. The very important subject of ununited fractures will gain contributions of value as a result of extended war experiences; so, as well, will the surgery of the peripheral nerves. Cushing, the distinguished brain surgeon, reported in February, 1918, his results in 133 brain wounds of the war: mortality 54 percent in the first forty-four cases, 40 percent in the second forty-four cases, and 28 percent in the remaining forty-five cases. Certainly a splendid piece of work!

Much might be quoted from other fields—the thyroid, the mammary gland, the chest, the abdomen. Space permits only the statement that the book is a welcome addition to any surgical library.

C. A. P.

**The Surgical Clinics of Chicago.** August, 1919. Vol. 3, No. 4, with 117 illustrations. Published bi-monthly by W. B. Saunders Company, Philadelphia and London. Price per year, \$10.

The busy surgeon who wishes to know what Chicago men are doing will find in this August, 1919, number thirty-three clinics on a wide variety of cases. Several are well presented, cover the subject, and give information of value. Several others bring out no points of value, are quite superficial, and may be skipped with advantage. A few show something new in operative methods.

The opening clinic by Dr. Dean Lewis contains a series of cases illustrating the common results of injury to peripheral nerves and the method of choice for the correction of each condition. He presents five cases, each showing a different type of injury. The method of treatment indicated for each type is clearly demonstrated with the help of lucid illustrations so that the reader can not miss understanding Dr. Lewis' exact technic.

Dr. Arthur Dean Bevan presents three cases in his usual excellent style. Of particular value is his method of excision of epithelioma of the lower lip. His procedure, carefully described and illustrated, appears to be an excellent routine for the average case of this sort. His views on neck dissection are also given.

Anyone interested in the surgery of the parotid gland will enjoy Dr. A. J. Ochsner's contribution, which consists of three cases illustrating certain benign lesions of that organ. Excision, resection and plastic operation of the parotid are explained.

The subject of cranial defects following compound injury or operation, especially in war wounds, is discussed by Dr. C. C. Nesselrode. He

considers the symptoms, the indications for operation, and the prognosis of this condition. This clinic is one of the best in the number giving a clear conception of the proper procedures in this not uncommon lesion. To cover the large defect in the case demonstrated here, Dr. Nesselrode employed osteo-periosteal grafts taken from the tibia.

Chronic dislocation of the outer end of the clavicle, and reconstruction of the acromio-clavicular articulation by the aid of a strip of fascia lata is the subject presented by Dr. Edwin W. Ryerson. His treatment of this obstinate dislocation appears of sound principle and may well be considered in any chronic case. His patient with a history of three years duration completely recovered in eight weeks after operation.

The operation of Dr. Herman L. Kretschner for vesico-vaginal fistula, while presenting no unusual features, is well explained by illustration.

G. B. P., Jr.

**Nervous and Mental Diseases:** By Archibald Church, M.D., Professor of Nervous and Mental Diseases in Northwestern University Medical School, Chicago, and Fredrick Peterson, M.D., formerly Professor of Psychiatry, Columbia University. Ninth edition, revised. Octavo volume of 949 pages, with 350 illustrations. Philadelphia and London: W. B. Saunders Company, 1919. Cloth, \$7.00 net.

This is a new edition of a work that has already proven its value as a text and reference book, for both the senior medical student and busy practitioner. All the salient points and leading symptoms that will aid in diagnosis are very clearly brought out. Special emphasis is given to those diseases that both the neurologist and general practitioner meet in their daily practice. The directions as to treatment are remarkably clear and can easily be followed by the reader. The rarer diseases have been treated more briefly than in most of the text books on neurology, but the most important symptoms and differential points are brought out with sufficient detail, and the student only gains by its brevity.

Though a good many views that have attained considerable popularity among some neurologists have not been discussed, "more time and experience being thought requisite for their unquestionable establishment", yet this new edition is, in the best sense of the term, a thoroughly up-to-date text book. As the authors state, "the needs of the student and the wants of the practitioner have had first consideration throughout", and as such the merits of the work are unchallenged.

Last, but not least, it would be an injustice to the authors not to compliment them upon the very good English employed and the absence of the literary jargon so common in neurologic literature. The style of the book, particularly the section on psychiatry, excels Sir William Osler's and fully equals that of William James.

L. V. T.

**The Surgical Clinics of Chicago.** Volume III, No. 5 (October, 1919). Octavo of 258 pages, 91 illustrations. W. B. Saunders Company, Philadelphia and London, 1919. Published bi-monthly. Price, per year: Paper, \$10.00; cloth, \$14.00.

A wide variety of interesting cases marks the October, 1919, number of the Chicago Surgical Clinics. There are thirty-three cases covering

every branch of surgery presented by seventeen surgeons.

The opening article by Dr. D. N. Eisendrath is a general consideration of tumors of the kidney introduced by a case of congenital cystic kidney. The subject is covered in a comprehensive manner.

Dr. Arthur Dean Bevan presents three subjects, each of particular interest, giving his diagnosis and treatment in his usual lucid manner. The operative procedures for abscess of the pancreas and for an advanced ulcerating carcinoma of the breast set forth many valuable points in the treatment of these difficult surgical diseases.

Several genitourinary problems in surgery are treated by Dr. H. L. Kretschmer and Dr. R. H. Herbst. The clinic on carcinoma of the prostate in particular presents some new and valuable features.

Treatment of fractures varying in location from the mandible to the os calcis, operative and non-operative, is expounded in various clinics. The clinic of Dr. Paul Oliver is mostly orthopedic, demonstrating four very instructive cases.

Major H. A. Potts and Major A. H. Montgomery present the war problems as they exist today, the plastic treatment of old wounds.

Dr. T. J. Watkins covers the gynecological portion of the clinics with a description of one of his perineal operations, while obstetrical technic is discussed by Dr. E. L. Cornell.

G. B. P., Jr.

**1918 Collected Papers of the Mayo Clinic,** Rochester, Minn. Octavo of 1,196 pages, 442 illustrations. Philadelphia and London: W. B. Saunders Company, 1919. Cloth, \$8.50 net.

One reads these Collected Papers, always with pleasure and profit. They cover a large number of subjects, both surgical and medical. While one is inclined always to think of the Mayo Clinics as surgical, because of the large amount of surgery done there, these papers show that the medical aspect of cases is well taken care of.

In reading this volume one feels he is getting the latest in all conditions treated, and that withal a marked conservatism is shown. He gets the advantage of the personal experience of the authors, who are men actively engaged in the different subjects treated, and less of reference to textbooks and of antiquated methods and theories. When references are given they refer you to up-to-date matter.

The editor, Mrs. W. H. Mellish, has arranged the papers so that discussion is given to the alimentary canal, genitourinary organs, ductless glands, heart and blood, skin and syphilis, head, trunk, extremities and the nerves, followed by a section on technic and general subjects. Every phase of every condition is thoroughly discussed and brought up to date. In the section on technic we get an idea of surgical improvement.

There are also valuable papers on laboratory diagnosis and subjects, with the technics employed.

One who carefully reads these papers will be helped in matters of diagnosis, as well as in surgical procedure and technics. There are over four hundred illustrations.

After reading the book practically from cover to cover, one does not hesitate to say it is well worth while to the general practitioner as well as to the surgeon; and that one who follows the many discussions cannot help becoming a better diagnostician and operator.

H. S. S.

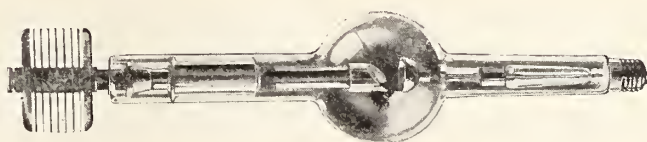


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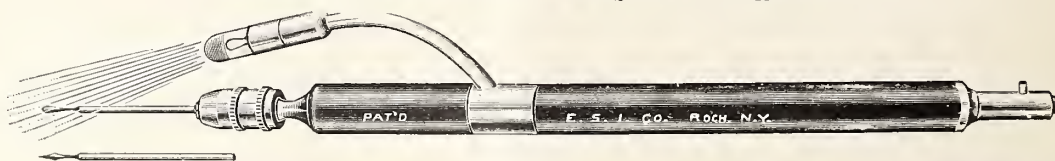
## Psychotherapy and Tuberculosis.

In observing tuberculosis suspects referred to the neurological clinic Jelliffe and Evans were strongly impressed by the marked notionalism and unreasonableness of many of these patients and their pronounced infantile reactions. They therefore subjected several to psychoanalysis which they report in detail. In every case they

uncovered strong resistances buried in the unconscious life, which they believe play no small part in hindering the recovery of tuberculosis patients from their disease. If these resistances are brought to light and removed therapy is thereby greatly aided.

The morale of the tuberculous patients is noticeably different from that of the average medical or surgical patient. They are whimsical, irresponsible, selfish, irritable, inclined to be irregular in their habits, etc. Although psychotherapy is given such an important place in several sanatoria, the physicians in charge do not know or recognize the unconscious conflict exhausting the patient's energy; and they approach the subject from an entirely different point of view, some working with suggestion, others with more physical means. The depressing effect of inhibited emotions upon physiological activity has been well established, and it should be the duty of the physician to improve metabolic changes through psychical control as well as through physical. In a psychoanalysis patients are able to see that these emotional disturbances result in a weak attitude toward life, desiring always their own gratification and unable to sacrifice the infantile wish. Psychoanalysis cannot change the physical results which are produced by the tuberculous process, but it can greatly improve the functional activities and the physiological processes by relieving the patient of the great drain on his nerve energy through making known to him the unconscious conflict between the heretofore unknown infantile wishes and the demands of conscious life—American Review of Tuberculosis, September, 1919, Vol. III, No. 7.

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# Colorado Medicine

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## Editorial Comment

### THE INFLUENZA EPIDEMIC AGAIN.

During and after the overwhelming influenza epidemic which occurred principally in the autumn of 1918, it was freely prophesied, on the analogy of the memorable visitation of 1889, that the epidemic would return in succeeding years. In the closing months of 1919 we felt pleasantly disappointed that this did not happen. But now, with the opening of the new year, the prophecy has rapidly been fulfilled, and from every large center, both in this country and on the other side of the Atlantic, comes word of an alarming incidence of what, in the absence of more accurate information, we must assume to be the same disease, although in apparently milder form.

On all hands we are assured that the situation is well in hand and does not threaten a heavy mortality. But general practitioners are rushed to the limit of their endurance, whole families are afflicted with sickness, institutions for the care of the sick are filled to overflowing, some schools and colleges are already closed, and the demand for nurses greatly exceeds the supply. All of which indicates that we are faced, if not with a great many deaths, yet with a serious dislocation of the daily affairs of life, and, especially in cases which can not be given the right amount of care, with the probability of very undesirable sequels related to the ears, nasal sinuses, and other parts of the body.

The city of Denver has very wisely taken time by the forelock in the matter of provision for influenza patients at the city and county hospital, where two complete wards

have been cleaned out and set aside for the purpose. This space may, however, easily prove inadequate, and there will also, in spite of an increasing shortage of nurses, be a great number of people who will insist on staying in their homes rather than accept the hospitality of a city ward. However mistaken this prejudice may be, it must be reckoned with and allowed for, and if a real danger exists, it is the duty of every large community, through whatever agency may be available, to provide the accommodations necessary for this and any class of patients. The Public Policy Committee of the Medical Society of the City and County of Denver recently approached the city management with regard to the problem, and was met with the statement that, in the steps that had been taken at the county hospital, the city had done all that was within its power. Presumably the financial difficulty stood in the way.

In the 1918 epidemic, emergency hospitals were established by the Red Cross, and at a recent lunch meeting of the Medical Society of the City and County of Denver Mr. W. V. Hodges, president of the Denver section of the American Red Cross and also president of the Denver Civic and Commercial Association, stated that the question of similar action by the Red Cross in the present outbreak had been considered, but that in the first place the local Red Cross felt uncertain as to the extent of the emergency, and that in the second place a question had been raised as to the right of the Red Cross organization to spend for this purpose money which it was argued had been contributed by the public simply for relief rendered necessary in connection with the war and with the demobilization of the United States Army.

It has been difficult for public authorities to establish by figures clear proof of the existence of a serious epidemic, for a great many physicians have been extremely negligent in the reporting of influenza cases. But conference between the various medical, charitable, and nursing organizations should be competent to put the facts broadly beyond cavil; and upon general agreement that an emergency does exist it would surely be proper for Red Cross funds to be diverted to the provision of such emergency hospital accommodation as may prove advisable. If the public which contributed the funds is satisfied that the work is necessary, that public will hardly quibble greatly over technicalities. It is much to be lamented that in such a public health emergency, civic funds cannot be more readily available than seems practicable at the present time.

(After the preparation of the above, a meeting was called by the Red Cross organization, at which were represented several of the Denver hospitals, the Visiting Nurses' Association, the Nurses' Directory, the Women's Council of National Defence, the Federation of Labor, and the Committee on Public Policy of the Medical Society of the City and County of Denver. The consensus of opinion was that owing to lack of equipment no immediate action could be taken for the provision of an emergency hospital; but that the private hospitals of the city should be urged to make the best possible use of existing facilities. It was further arranged that the nursing situation would be carefully studied in every part of the city by the Women's Council of National Defence. Some incidental details, such as economy in the use of available nurses, were to be taken up more fully at a later date.)

W. H. C.

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### REGARDING CATHARTICS.

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The annals of most medical publications contain what may be termed cyclic considerations of commonplace subjects. These are often treated in such a manner as to be highly instructive, as is the intention, but unfortunately the teachings sometimes conflict with the experience of observers in a

way that is quite akin to the impracticality of a culinary receipt from a popular magazine or *livre de cuisine*.

Contributions to such subjects as cathartics furnish a case in point, some of them admitting of the gentle criticism that they do not bespeak the results of experience and observation from the broadest point of view.

Our attention was attracted recently to the subject of cathartics, especially with reference to the administration of magnesium sulphate, which it is stated should be given as a rule with large quantities of water and not in concentrated form. The facts in the case seem to be that magnesium sulphate is a purge by reason of its abstraction of water from the intestinal blood vessels, because it stimulates peristalsis directly, and by reason of the fact that solutions of it are not readily absorbed; and therefore, when a thorough purgative is required—that is when depletion of the intestine or absorption of exudate is to be obtained—the magnesium sulphate should be given in such concentration as to make its solution of as high a percentage as possible.

There was a time when the pendulum had swung so far in the opposite direction with regard to this small point, that it was recognized that this valuable salt of magnesium might be given in dry form with advantage, and there were manufactured elastic capsules, containing thirty grains of the drug, to facilitate its administration in the dry state. There are many cases in which the use of the salt in dry form has a decided advantage over the nauseous, copious draught of a "well diluted" solution. As taken dry upon the tongue, the amount required is about one-fourth of that ordinarily administered in solution. Owing to the difficulty of solution, there is but little taste when placed upon the tongue and swallowed with cold water; and, in cases where a sustained effect is desired, this means of administration is not as a rule followed by reactionary obstipation as is the case when large volumes of water are used in its solution.

It should not be inferred that freely diluted solutions of Epsom salt are to be condemned, but it would seem that when the subject of catharsis is discussed omission



of matters of provincial experience should be avoided.

Likewise, the statement that acidulous foods or fruits may be taken with impunity along with calomel since the idea that this association was to be avoided has been found to be erroneous, is dangerous; isolated personal experience to the contrary notwithstanding. There are on record instances of individuals falling from great heights and escaping unharmed, but this is no reason or argument for the recommendation of such falls. Both of the chlorin salts of mercury (and more especially the bichloride, into which a portion, often negligible, of the mild chloride is converted in the stomach) are rendered more soluble by the presence of citric acid, of which lemon juice contains about six or seven percent. So well recognized is this fact that antiseptic tablets are made with the admixture of citric acid to facilitate the rapidity of solution. At the same time it is conceded that the danger of the mild chloride of mercury arises from the possibility of absorption from the intestinal tract, as a result of a delay in its passage or the coming in contact with substances that facilitate its solubility or its absorbability, and as an example potassium iodide is especially mentioned. The inconsistency here is apparent.

Whether or not it may be demonstrated *in vitro* that salivation can not be caused by the presence of fruit acids, experience obtains that *in vivo* it very often does occur. And, certainly, the restriction of anything which incurs a liability is preferable to the assumption of risk for no other reason than to advance a dogma.

G. A. M.

### DOGMATISM IN MEDICAL WRITING.

It is unquestionably the fault of some medical writers that they are rather dogmatic in their teaching, only to find with experience of later date that they were mistaken in some one or more of their premises and that the whole structure of theory, given with more or less absolutism, has tumbled upon the heads of those who may innocently have sought shelter under it. In the

foregoing criticism of recent writings upon cathartics, the aim is not so much at any particular fallacy which may be present as the practice of which it is an instance—that of setting forth with the air of absolute finality and under the apparent authority which anonymity gives in a regular department of an authoratative journal, directions for the guidance of the profession.

This may be illustrated by a statement which has recently appeared that "One of the chief faults of the cathartic salines is their deficiency in stimulating peristalsis; indeed, intravenous or intramuscular injection has been shown to inhibit bowel movement. The rapid evacuation produced is due to distention of the intestine with fluid; . . ." This would hardly lead one to expect, then, that with regular small doses of the salines, such as sodium phosphate, regular soft (not liquid) stools could be secured; yet such is the experience of at least one physician. That parenteral administration of the salines causes certain effects upon bowel peristalsis does not at all signify that their local effect upon the intestinal mucosa when given by the mouth may not produce an opposite result, possibly by reflex action; and it is admitted in the same article that there is no absorption of the drug in case the desired result is obtained, so that inhibitory effects through the circulatory system could hardly be looked for.

One rather likes to see statements qualified by "if it be true that," or "it is believed that," or some such phrase which at once places upon the reader the responsibility of using his own brain; otherwise he will be inclined to follow by faith the teaching which bears the stamp of unequivocal authority. An author does not lose cast by admitting uncertainty, when uncertainty surely exists, and his opinion is worth even more when it is seen to have encompassed the possibilities of error.

Armour and Company will be pleased to send a reprint of Frederic Fenger's article on "The Seasonal Variation of the Iodin Content in the Iodin Gland" to any physician who will ask for it. This paper records work covering more than twelve months, which was done in the research laboratory in organotherapeutics of Armour and Company. Address Armour and Company, Chicago.

Current Comment

RAILROAD RATES FOR A. M. A. MEETING.

The early date of the annual session of the American Medical Association makes it possible to take advantage of the reduced railroad rates effective for winter tourist travel and at the same time have a choice of routes going or returning.

For the guidance of members from Colorado who contemplate attending the session, the following communication from the Railroad Administration was solicited; it conveys in brief the possible routings and rates:

“Winter tourist fares from Denver to New Orleans are in effect daily up to and including April 30, 1920, with final return limit of to reach original starting point prior to midnight of May 31, 1920. Stopovers will be allowed at all points within final limit of ticket on either going or return trip or both, on application to conductor.

“The round trip fare Denver to New Orleans (War tax 8 percent additional) is as follows:

Route No. 1, via St. Louis, (not via L. & N.) .....	\$74.05
Route No. 2, via Memphis, Shreveport, Alexandria, Farri day, Fort Worth, Dallas, Houston, Beaumont or Lake Charles .....	74.05
Route No. 3, via Kansas City and route Nos. 1 or 2 .....	74.05
Route No. 4, via Omaha or Council Bluffs and Kansas City, St. Louis or Memphis .....	79.80
Route No. 5, via Pueblo and route 1, 2 or 3 .....	74.05
Route No. 6, via Chicago (not via Mobile) .....	87.70
Route No. 7, via Chicago and Mobile..	87.70
Route No. 8, via St. Louis and L. & N.	78.15

“These tickets may be sold via diverse routes at a combination of one-half the fare applying via the route used on the going trip plus one-half the fare applying via the route used on the return trip.

“The standard lower berth rate from Denver to New Orleans via Fort Worth or Dallas or via Kansas City and Memphis is \$8.00

plus tax 64c and via St. Louis \$8.50 plus tax 68c; via other routes the berth rate would be figured local over the junction point. For example: Via Chicago the lower berth rate would be \$6.00 plus 48c tax Denver to Chicago, plus \$5.50 plus tax 44c, Chicago to New Orleans.”

G. A. M.

SECURE RESERVATIONS FOR A. M. A. MEETING.

We are reliably informed that hotel accommodations in New Orleans during the meeting of the A. M. A. are going to be scarce. Reservations should be made **now** and at a fixed rate, otherwise dissatisfaction is likely to result.

THE MIGRATORY CONSUMPTIVE IN COLORADO.

Certain regions in the United States, notably Colorado, California, Arizona, New Mexico, and Texas, are reputed to have climatic conditions that will cure tuberculosis. People afflicted with lung and throat affections have migrated thither in large numbers to receive the advantages of dry air, sunshine, and the other conditions which enable them to derive the benefits of living out of doors. Colorado has undoubtedly received its full share of migrating invalids. Many of these have recovered their health, and of this number some have returned to their homes, while others have remained here, engaged in business and are now valuable citizens to the community. On the other hand, large numbers have died, most of these because their disease was so far advanced that they could not be benefited in any locality, but for the most part those who died did not have sufficient funds to enable them to live under the proper conditions to receive the benefit of the climate. The first group, those that recovered, have spread far and wide the supposed value of the climate in their cure. They have become publicity agents for the climatic resort communities; but the other group, those who have died, could not make public the details of the painful struggle that they made, the suffering and homesickness that they had



to endure, finally, away from family and friends, having to give up the fight to die. Undoubtedly, if the harrowing tales of these pitiful battles for life could be published broadcast, the desire of poor consumptives to travel to other climes to "chase the cure" would be greatly checked. Those who come on to form this second group for the most part cannot be regarded as an asset to any community, and Colorado is burdened by a large number of them.

The indigent migratory consumptive is one who has left home for the purpose of regaining health and who has not sufficient funds to properly finance his move. In Colorado, Denver naturally receives the brunt of the migration of such cases. Colorado Springs, while essentially a health resort, is not the type of city sought by the poorer class. (One hundred and ten nonresident cases visited the Colorado Springs tuberculosis dispensary in the six months, April to September inclusive, 1919.) The other cities, such as Pueblo and Trinidad, are but stopping-off places for those who are traveling to more distant points. It is a difficult matter, however, to determine just how much the problem affects Denver as a community. The public at large is probably totally unaware that there is such a problem, but the relief organizations and the health department, coming in actual daily contact with the cases, are seriously and justly concerned. The individual cases are themselves distressing and pathetic, and the relief agencies that are obliged to handle them are hampered by the lack of proper facilities in Denver and vicinity for sanatorium care, so that these authorities are constantly confronted with the difficult question of their satisfactory disposition.

To get an idea of the size of the problem numerically, we can only estimate from the cases handled by the different relief agencies. The municipal dispensary, for example, during the five months in 1919 from July to November, inclusive, received three hundred and ninety new tuberculosis cases, of which number 57½ percent were non-residents, that is had lived in Denver less than one year. The Jewish Aid Society in the same period handled approximately one

hundred cases, of which probably 75 percent were nonresidents. In addition to this, the Visiting Nurse Association handled approximately fifty cases, and other agencies a considerable number more. This means, making of course a rough estimate, that Denver has between fifteen hundred and two thousand cases of more or less financially dependent nonresident consumptives during a twelve-month period.

Denver has very limited facilities for caring for this group of tuberculous patients. Craig Colony can accommodate about seventy men; Sands House, about twelve women; the county hospital, with very unsatisfactory accommodations for approximately thirty-five tuberculous patients, will take no nonresidents; and the municipal lodging house is able to furnish temporary quarters for a small number of cases until other disposition can be made of them.

It is an astonishing fact that Denver as a county and a municipality will not accommodate any emergency case of tuberculosis. The writer investigated the case of an indigent migratory consumptive from New Mexico, who arrived on a stretcher in Denver at seven o'clock on the morning of September 12th. The authorities would not take this patient to the county hospital, and the poor man remained in the depot—not in the hospital room, but in the immigrant waiting room—until one-thirty in the afternoon, when he was taken to Craig Colony, where he died of tuberculous meningitis in three or four days' time. Other emergency cases that have been refused admission to the county hospital have been reported to the writer, but he has not personally investigated them. It would seem most unfortunate that a city the size of Denver should refuse admission of emergency cases of tuberculosis to its city hospital unless they are residents of Denver. I know of no other large city in the United States that would take this inhumane attitude towards emergency cases of any type.

The problem of tuberculosis among the Jews is handled fairly well by the Jewish organizations. The two large national institutions, the National Jewish Hospital, and the sanatorium of the Jewish Consumptives' Relief Society, receive cases from all parts

of the country, mainly from New York and Chicago. These institutions will take a small percentage of Gentile cases. The problem in the relief of the indigent Jewish cases arises from the fact that these two large institutions are in Denver; as many patients arrive here without having made proper application for entrance, and hence become a temporary burden upon the Jewish Aid Society. Again, when patients are discharged from either of these institutions and refuse for one reason or another to return to their homes, they are frequently obliged to apply to the Jewish Aid Society for assistance.

If Denver as a community regards the presence of the indigent migratory consumptive as a menace to its health, precautions nevertheless are not taken to protect it in any way. (That there is a tuberculosis menace in Denver is indicated by the death statistics from the city board of health for 1918, showing that out of seven hundred and ninety-eight who died from tuberculosis one hundred and forty-three contracted the disease in Colorado.\*) One may go to any drug store or ice cream parlor and drink a glass of coca-cola or eat a plate of ice cream immediately after a person with active tuberculosis has done the same, the glasses and spoons not having been sterilized. There are few, if any, precautions taken in the poorer class of hotels and rooming houses by cleaning and disinfecting rooms that have been occupied by tuberculous people. There is no attempt to enforce the anti-spitting ordinance, and in many other ways the community as such appears to be blind to the possible dangers that undoubtedly exist.

It would seem very desirable to prevent as far as possible the migration to this community of the indigent consumptive. The only active measures at present being taken to check this migration are those of the local Anti-Tuberculosis Society, which distributes a small circular entitled "Why Tuberculous Persons Without Funds Should Not Leave Home". At the time when these cases are registered at the dispensary or

elsewhere, if they report that they came to Denver on the advice of a physician, the name of this physician is obtained, if possible, and such physician is promptly communicated with from the office of the Anti-Tuberculosis Society. It is the general opinion, expressed by physicians who are coming in contact with these migratory cases, that there are not as many patients being sent out in the advanced stages of the disease as formerly, and probably the actual number of cases is not as large in proportion to the population as it has been in former years. The number of cases, however, will appear greater because of the more complete records now being furnished through several agencies that have been organized and are tabulating the various cases as they come in contact with them.

The indigent migratory consumptive problem undoubtedly is an acute one in Denver, but in view of the above factors it would not seem to be as great as in former years; and it is the opinion of the writer that if Denver would make proper provision for its resident cases of tuberculosis; would modify its attitude toward the care of nonresident tuberculosis emergency cases; and would make proper provision for protecting itself from the dangers entailed by the presence in the community of existing active cases of tuberculosis, the problem would not be acute and could be handled with comparative ease.

SEVERANCE BURRAGE,

Secretary, Committee on Indigent Migratory Consumptives, National Tuberculosis Association.

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## THE RED CROSS AND PUBLIC HEALTH.

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Under this same heading, in the June, 1919, issue of **Colorado Medicine**, editorial comment was made upon the proposed League of Red Cross Societies, and the close relationship between relief work and preventive medicine was pointed out.

The Bureau of Health, which, following the Cannes Conference in April of last year, was recommended as a division of the League, seems now to be assured and a schedule of activities, enormous in scope,

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\*Editor's Note: An article in the November, 1919, issue of **Colorado Medicine** by Dr. H. B. Whitney gives an analysis of these records which shows them to be faulty, unreliable and adversely misleading as regards the immunity of Coloradoans to tuberculosis.



has been formulated for it by the General Conference. Since it is expected that there will be important news on this subject growing out of the League conference at Geneva in the coming March, it is worth while to be acquainted with the plans for the Bureau of Health; an outline of them, with an explanatory paragraph of the Conference follows:

"Although the Conference does not advise the Bureau of Health of the Red Cross to undertake at once all the activities considered, it submits the following resolutions and memoranda unanimously adopted by the Conference relating to the special subject of Preventive Medicine, Child Welfare, Tuberculosis, Malaria, Venereal Diseases and Nursing, as well as the report on Publication, Education and Statistics, for the purpose of indicating in a general way some of the lines of activity which the new organization may wisely follow:

"Resolved: 1. That in view of the wide prevalence of **Typhus Fever** and the extremely grave representations made to the Conference concerning it, the control of this disease be at once undertaken as an emergency relief measure.

"2. That the promotion of a wide extension and development of **Child Welfare Work** be selected as of the first important constructive activity.

"3. That wide **Public Health Legislation** and efficient **Public Health Administration** be encouraged everywhere and by all appropriate means, through National Red Cross Societies, and particularly that the accurate and full registration of vital statistics be urged as forming the fundamental basis for definite and permanent improvement of health conditions.

"4. That efforts be made to secure a standardization of the **Vital Statistics** of all those countries where adequate registration and notification are not in effect so that comparable data on important subjects may be available, and that standard tables be prepared and submitted for modification and adoption by the authorities in such countries.

"5. That the Bureau of Health encourage scientific investigation in **Hygiene and Sanitary Science**, since progress in Public Health depends upon the advancement and the application of knowledge.

"6. That the establishment of **Public Health Laboratories** or the provision for laboratory service for every community is an extremely important means of promoting efficient Public Health Administration.

"7. That the extension of the **employment of public health nurses** or health visitors be furthered in every possible manner in all countries, and that standardized educational centers for training such nurses or visitors be developed.

"8. That the program for the control of **Tuberculosis, Malaria and Venereal Diseases** submitted by the Conference be urged for adoption in all countries.

"9. That since educational propaganda has been shown to be the most efficient means for forwarding all forms of health activity, we especially urge the general adoption of **scientific publicity methods**.

"10. That the **training** by thoroughly qualified teachers of **school children** in all grades in the subjects of **personal and general hygiene**, and the inculcation of proper health habits during school life, are essential measures for permanently im-

proving the health and contributing to the welfare of the people.

"11. That special attention be directed everywhere to the importance of **town and city planning and proper housing** for working men; and that National Red Cross Societies be advised to prepare plans and designs suitable for use in their respective countries, and proffer the assistance and the advice of experts where construction work is under consideration.

"12. That the National Red Cross Societies and their Chapters be urged to promote the erection of buildings to be used as **health and community centers** in their respective localities, as a most useful, appropriate, and permanent memorial for the soldiers who have lost their lives in the war. That model plans and designs for those be prepared and made available to the people of various communities.

"13. That the general principles underlying successful work in **new countries** which are detailed in the report of Child Welfare be recommended for general guidance in all health work in such communities."

## ANNUAL CONFERENCE ON PUBLIC HEALTH AND LEGISLATION.

Never before has the importance of public health work been so generally appreciated as it is today, and never before have endeavors in that field had the impetus that exists now. The movement is apparently at the threshold of vast accomplishment. The conference referred to in the heading has been called by the Council on Health and Public Instruction for March 4, 1920, at the Auditorium Hotel, Chicago. Incidentally, this meeting will directly follow the Annual Congress on Medical Education and Licensure, to occur March 1, 2 and 3, 1920, mention of which will be found in the News Items of this issue. The following program is printed at the request of the Council:

### PROGRAM.

#### Morning Program.

1. Call to Order, 9:30 a. m.
2. Chairman's Address, Dr. Victor C. Vaughan, Chairman, Council on Health and Public Instruction, American Medical Association.
3. Secretary's Report, Dr. Frederick R. Green, Secretary, Council on Health and Public Instruction, American Medical Association.
4. "Standardization of Public Health Activities," Dr. George E. Vincent, President, Rockefeller Foundation.
5. "Standardization of State Public Health Organizations," Dr. Chas. V. Chapin, Commissioner of Health, Providence, R. I.
6. "Standardization of Municipal Health Organization," Dr. Allen McLaughlin, Assistant Surgeon General, United States Public Health Service.
7. General Discussion, opened by Dr. C. St. Clair Drake, Commissioner of Health,

Springfield, Ill., and Dr. Ennion Williams, Commissioner of Health, Richmond, Va.

**Afternoon Program, 2 P. M.**

**Symposium on Health Education of the Public.**

1. "Health Education in the Public Schools—Thirty Years' Experience in Michigan," Dr. Victor C. Vaughan, Ann Arbor, Mich.
2. "Health Education and Activities in Colleges and Universities," Dr. John Sundwall, Director Students' Health Service, University of Minnesota, Minneapolis, Minn.
3. "Health Education a Function of Municipal Health Departments," Dr. Haven Emerson, New York.
4. "Health Education a Function of State Health Departments," Dr. W. S. Rankin, Secretary, State Board of Health, Raleigh, N. C.
5. "Health Education a Function of the Federal Government," Dr. Chas. V. Bolduan, Director, Division of Public Health Education, U. S. Public Health Service.
6. General Discussion, opened by Dr. John M. Dodson, Chicago; Prof. W. B. Owen, Superintendent, Chicago Normal College.

## *Original Articles*

### **EMPHYEMA AS SEEN AT CAMP KEARNEY DURING THE RECENT EPIDEMIC OF INFLUENZA.\***

Major Thomas E. Bailly, Captain James R. Arneill,  
Captain Arthur Stanley Granger, Captain Leon  
Shulman, Captain Frank E. Smith.  
(U. S. Army Empyema Board).

At Camp Kearney the prevailing pandemic of respiratory disease, called by common consent influenza, began September 23, 1918, with four cases and the crest of its highest wave was reached on October 29, 1918, with a receiving ward record of two hundred and seven cases. On November 17, 1918, the lowest point of the first wave was reached, with a record of nine cases. At this time the authorities thought that the epidemic had spent its force. However, a new crop of susceptibles was discovered by the virus; the cases became more numerous and the crest of the second and smaller wave was reached November 22, 1918, with a record of eighty-three cases on that date. From this time the epidemic gradually subsided until on January 1, 1919, it was called a closed chapter, with a receiving ward record of five cases. Since this date the number of cases has varied from five to ten a day until February 3,

1919, on which date the receiving ward reported that not a single case of influenza had entered the hospital.

During this period of one hundred days, September 23, 1918, to January 1, 1919, there entered the base hospital four thousand, seven hundred and eight cases diagnosed as influenza. During this same period, and among these same cases, there were diagnosed seven hundred and twenty-eight cases of pneumonia. Among the four thousand, seven hundred and eight patients entering the hospital with influenza, there were one hundred and forty-nine deaths from pneumonia; and these were practically all cases of bronchopneumonia. Soldiers here did not die from influenza, so often given as the actual cause of death in the mortality records of various cities, but from pneumonia or pneumonia complicated by empyema or lung abscess.

Among our autopsy records of one hundred and thirty-five cases of pneumonia during this epidemic, there were one hundred and thirty-four cases of bronchopneumonia and one doubtful case of lobar pneumonia. We feel absolutely positive that there were several hundred cases of mild influenzal bronchopneumonia unrecognized which recovered under the diagnosis of influenza. The explanation of this fact is this: The pressure of the work during the height of the epidemic was such that ward surgeons found it impossible to examine carefully every case. As a result, the mildly sick influenza cases did not receive a careful chest examination each day, and although exact temperature, respiration and pulse records of each case were kept by the nurses, and by this means, together with careful inspection, the mild cases were segregated, they were not given as thorough an examination as the severe cases. At the same time, not all ward surgeons at all times recognized the signs of a beginning and small bronchopneumonia. We believe that in this base hospital at least one out of every five influenza cases, at some time in its course, had the signs of bronchopneumonia.

Our records show the presence of twenty-five cases of empyema, recognized either be-

\*Read by Dr. Arneill at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1919.



fore death by the ward surgeon or at autopsy by the pathologist, among the seven hundred and twenty-eight cases of pneumonia (thirty-four percent). By empyema we mean every case showing pleural fluid, no matter how small the quantity, from which a pathogenic organism can be recovered by culture. We believe it to be quite likely that a definite number of cases of small, mild empyema escaped recognition and that the patient recovered as a result of absorption, encapsulation or organization of the exudate without operation or aspiration. However, an empyema or lung abscess of much moment has a faculty of making itself known by symptoms and signs which call for recognition or, if these are not recognized, by progressing to a serious or fatal termination, when the diagnosis is made by the pathologist much to the discomfiture of the clinician.

**Etiology:** Predisposing factors played but little part in these cases. The severity of the symptoms both of influenza and of the pneumonia following it seemed not to influence in any degree the complication of empyema, nor did the time elapsing between the first symptoms of influenza and the patient's entry into the hospital bear any relation to it; eighteen, or seventy-two percent, reported to the hospital on the day of or the day following the onset of influenza. Twenty, or eighty percent, gave a negative history of previous disease. Four had had a previous pneumonia (one four years before, and three two years before). One had had typhoid. Ten, or forty percent, used neither alcohol nor tobacco. Fourteen used alcohol to a varying degree. Fifteen, or sixty percent, were between the ages of twenty-one and twenty-three; five between twenty-five and twenty-eight; three between nineteen and twenty; two between thirty-one and thirty-four. Seventeen, or sixty-eight percent, before their entrance into the army were engaged in outdoor occupations. The same number had outdoor duties in the army. There were seventeen Americans by birth, three Mexicans, two Italians, and one each of Swedish, Russian and German descent. Thirteen, or fifty-two percent, had been in the army three months

or less. All were housed in tents. Sixteen, or sixty-four percent, were robust and well developed. The organisms found in the pleural fluid aspirated for diagnosis were as follows: streptococcus hemolyticus, eight; staphylococcus, two; streptococcus viridans, three; pneumococcus type IV, one; and no growth in three cases. At autopsy the influenza bacillus was found in the pleural fluid in four cases, in the lung in seven cases and in the heart's blood in one case. Streptococcus hemolyticus was found in the pleural fluid in four cases, in the lung in two, in the heart's blood in two, and in the spleen once. Pneumococcus type III was found in the pleural fluid in three cases, in the lungs in four, in the heart's blood in three and in the spleen in two. Pneumococcus type IV was recovered from the pleural fluid in two cases, from the lung in four and from the heart's blood once. Streptococcus viridans was recovered from the pleural fluid in three cases, from the lungs in three, from the heart's blood in one and from the spleen and pericardial fluid in two cases each. Seventeen cases showed the same organisms in the lung and pleural fluid. The aspirated fluid was in most instances (sixty-eight percent) serous in appearance with varying amounts of floecules present; in but seven cases did it appear purulent. The amount varied from fifty to fifteen hundred cc. The left side was involved in twelve cases, the right in twelve, and both sides in one.

**Pathology:** Autopsies were done on nineteen cases of empyema. The pleura in those in whom the process had progressed for several days was almost invariably covered by a very thick, shaggy, yellowish exudate, which to a greater or less extent bound the parietal to the visceral layer so that the lung filled the chest without being pushed in any direction. The fluid lay within the interstices of this exudate. Eleven cases, or fifty-eight percent, were so affected. In but three cases was the pleura noted as smooth; the amount of pus in these was small. Two presented fibrous adhesions; in three the exudate was thin. Two showed distinct pocketing of the fluid. The pleura of the side opposite the affected one was normal in seven cases; in five there were present

Chart I: Organisms recovered at autopsy.  
Organisms.

Organisms.	Pleural Fluid.....	Lungs.....	Heart's Blood.....	Spleen.....	Pericardial Fluid.....
Influenza bacillus .....	6	5	1	0	0
Pneumococcus type I.....	1	0	1	0	0
Pneumococcus type IIa...	0	1	1	1	0
Pneumococcus type III...	3	5	3	1	0
Pneumococcus type IV...	4	4	1	0	0
Streptococcus hemolyticus	3	2	2	1	0
Streptococcus viridans ...	6	2	2	2	2
Staphylococcus .....	4	5	4	2	0

fibrous adhesions in varying degree; there was noted a thin fibrinous exudate with serous fluid in three cases; in two a thin exudate without fluid was present; one showed a small amount of serous fluid without an accompanying fibrinous exudate, and in one there was pus.

The lung of the affected side showed a partial collapse in ten cases, or fifty-two percent. This was only apparent in most instances on section, as the thick exudate present closely bound the lung to the chest wall and diaphragm. The color differed according to the extent of the process. In most instances it was mottled with intermixed reddish and grayish nodules which stood out from the surface. The edges of the lobes usually presented a compensatory emphysema. The lungs whose pleural surface was not covered by a thick exudate were heavy and voluminous. These last named showed a considerable amount of edema on section. In two cases there were present small areas of necrosis. A massive necrosis was noted once. From the cut surface of those which gave a culture of pneumococcus type III (three cases) a stringy exudate was noted. Microscopically the alveoli were filled with red blood cells and fibrin or with leucocytes, fibrin and desquamated epithelium, depending upon the location of and the progress of the pneumonic process in the section cut. The areas of necrosis showed broken-down pus cells and debris. The lung of the opposite side presented varying degrees of pneumonic involvement in every case. Lung cultures were positive in seventeen cases, or ninety

percent. The interlobar fissures were obliterated by fibrinous adhesions in all but three instances.

Complicating pathology except in those organs affected by the toxemia was comparatively rare. The pericardium was negative in fifteen cases, or seventy-nine percent; one case showed petechial hemorrhages, one a slight excess of fluid in the sac and in two there was slight roughening of the serous surfaces. The heart was normal in thirteen cases, or sixty-eight percent. Ulcerative endocarditis was found once. The right side of the heart was dilated in four instances, the left side in one of these. Cultures were positive from the heart's blood in eight cases. The spleen was enlarged in seventeen cases, or eighty-nine percent. In seven instances the cut section was markedly friable and in eight presented scattered grayish nodules of about two mm. diameter; microscopically there was a hyperplasia of the malpighian corpuscles and a phagocytosis by the endothelial cells of the venules; cultures were positive in seven cases. The liver was normal in eighteen cases and showed passive congestion once. There were adhesions (old) about the gallbladder in two instances. The kidneys were swollen and congested in seventeen cases, or eighty-nine percent; in two of these the normal markings were obliterated; microscopically there was a cloudy swelling of the convoluted tubular epithelium, a thrombosis of the glomerular capillaries and adherence between the glomeruli and capsule. One case showed petechial hemorrhages beneath the peritoneum of the abdominal viscera.

**Symptoms:** There was no preceding chill. The general symptoms of the pneumonia gradually changed into those of the complicating empyema. Pain was present in fifteen of the cases, or sixty percent; of these it was noted in the affected side in thirteen, in the opposite side in two; in ten it was absent or not marked. There was a secondary rise in temperature in twelve cases; in thirteen it continued high throughout the pneumonia and empyema. The pulse and respiration showed no change in the transition from pneumonia to empyema.



Chart II: Combination of organisms found at autopsy.

Organisms.	Pleural Fluid.....	Lung.....	Heart's Blood.....	Spleen.....
B. Influenza alone .....	2	1	0	0
B. Influenza and streptococcus hemolyticus .....	1	0	0	0
B. Influenza and streptococcus viridans .....	1	1	0	0
B. Influenza and pneumococ- cus IIa .....	0	0	1	0
B. Influenza and pneumococ- cus III .....	0	1	0	0
B. Influenza and pneumococ- cus IV .....	1	0	0	0
B. Influenza and staphylococ- cus .....	0	1	0	0
B. Influenza, pneumococcus IV and staphylococcus .....	1	1	0	0
Streptococcus hemolyticus alone	0	0	1	1
Streptococcus hemolyticus and pneumococcus I .....	1	0	0	0
Streptococcus hemolyticus and staphylococcus .....	1	2	0	0
Streptococcus hemolyticus, sta- phylococcus and pneumo- coccus I .....	0	0	1	0
Streptococcus viridans alone...	4	0	1	2
Streptococcus viridans and sta- phylococcus .....	0	2	1	0
Streptococcus viridans, pneumo- coccus III and IV.....	0	1	0	0
Pneumococcus IIa alone.....	0	1	0	1
Pneumococcus III alone.....	3	3	3	1
Pneumococcus IV alone.....	1	2	1	0
Pneumococcus IV and staphy- lococcus .....	1	0	0	0
Staphylococcus alone.....	1	0	2	2

Cyanosis was marked in seven cases, moderate in three, slight in two and absent in thirteen, or fifty-two percent. Physical signs were in many instances misleading. In fourteen cases, or fifty-six percent, there was no flatness and the breath sounds were bronchial in character. This will be commented on later. Dullness and diminished breath sounds were noted in four cases, while but seven showed flatness to percussion and absent breath sounds. Leucocytosis with high polymorphonuclear percentage was the rule. Counts done on nineteen cases showed ten with leucocytes above twenty thousand, three above fifteen thousand, while six were under fifteen thousand. The polymorphonuclears were above ninety percent in ten cases, between eighty-five and ninety percent in two, between eighty and eighty-five percent in three, and below

eighty percent in three cases. In general those with low counts were the rapidly fatal cases of pneumonia with but little pus found in the pleural cavity at autopsy.

The urine showed albumin and granular casts in twelve cases, albumin alone in two, albumin and pus in five; five were negative and there was no report on one.

Complications were few; ten cases, or forty percent, showed none. Jaundice was present in four, pleurisy (fibrinous) in seven, phlebitis (femoral) in two, while mitral regurgitation, conjunctivitis, otitis media and tonsillitis were each present in one.

The **diagnosis** was made on: (1) A rise in leucocytes with high polymorphonuclear count. This was fairly constant; (2) A change in the percussion note from dullness to flatness with diminished or absent breath sounds; (3) Exploratory puncture.

The classical signs of flatness, absent breath sounds and change in level of fluid were absent in many cases because of the fact of the lung being bound to the chest wall by shaggy fibrinous adhesions and the fluid lying in the innumerable interstices so formed. Consequently we learned that dullness with tubular breath sounds and bronchophony were by no means negative signs of empyema. In the eight cases not diagnosed during life there were no physical signs of fluid, there was a low leucocyte count in six and one died the day positive signs appeared.

**Treatments:** But seven cases of the twenty-five received surgical treatment. Thoracotomy with drainage was done on two of these; one died. Aspiration with injection of two percent formalin in glycerine followed later by thoracotomy was done on four. Rib resection was done once, a case complicated by lung abscess. Six of the seven are living. Of the remaining eighteen cases, aspiration with injection of two percent formalin in glycerine was done on two; eight had one or more aspirations; and eight were not diagnosed during life.

**Comments:** It will be seen that among our twenty-five cases of empyema nineteen, or seventy-six percent, died and six, or twenty-four percent, recovered or are still

under treatment in the empyema ward of the base hospital.

Of these twenty-five cases: Seventeen cases were diagnosed by the ward surgeons in charge of the pneumonia wards; eight cases were diagnosed by the pathologist at the autopsy.

Of the nineteen cases of empyema which died: One was operated by thoracotomy with drainage; ten were aspirated from one to four times; eight received neither aspiration nor thoracotomy but were diagnosed on the autopsy table.

Of the six cases which recovered, one was operated on by resection (lung abscess) and five by thoracotomy with drainage, after they had received from one to six preliminary aspirations of from twenty cc. to twelve hundred cc. of fluid.

It might be inferred from the above statement and statistics that nearly all of the nineteen fatal cases might have been saved if they had been promptly diagnosed and as promptly operated upon, inasmuch as all of the six cases which are alive were operated—thoracotomy in five and costectomy in one.

Among the nineteen cases which died only one was operated upon (thoracotomy), the patient dying eleven days later, having bled profusely from the wound and having suffered severely with hiccough; while ten were aspirated, a few of these receiving two percent formalin in glycerine in the pleural cavity; and eight received neither aspiration nor operation (i. e. thoracotomy or costectomy).

As a matter of fact the vast majority of these cases did not die from empyema but from the extensive bronchopneumonia and the attendant profound toxemia, the empyema proving only an incident in the case; yet, to be sure, it might have proved an important factor, had not the patient so promptly died from his bronchopneumonia.

However, this condoning circumstance did not relieve the ward surgeon of much chagrin and sorrow when empyema of recognizable size was diagnosed in the morgue, rather than in the pneumonia ward. In many of these cases the disease process was so fulminant and the soldier so desperately

ill with extreme weakness, agonizing dyspnea, marked cyanosis and delirium that the ward surgeon did not feel justified in turning the patient on his side, or causing him to sit up in order to make a careful examination and exploration. Because of these distressing circumstances, the diagnosis was not made in many cases. Had it been made only a small quantity of fluid would have been found in most cases and aspiration or operation would not have saved the patient; the bacteremia, toxemia and mechanical involvement from consolidation, not from pleural exudate, were such overpowering factors. In the majority of the cases diagnosed as empyema at the autopsy and not recognized before death the quantity of pleuritic exudate was so small and had developed so recently that it could have cut almost no figure in causing the fatal termination. It would not have been called by the majority of surgeons an empyema necessitating operation.

The extreme difficulty of diagnosis of certain types of empyema in this epidemic is generally recognized. The fluid in most cases did not change levels and often had intermingling air-containing lung tissue. The one dependable rule was: when in doubt, use the exploratory needle freely, but with discretion. It is unnecessary to note that the needle should be of good calibre and length. One should not be satisfied with one or two punctures. We have known of the pocket of pus being finally located in the patient of a colleague, in Colorado, after fourteen exploratory punctures. At present there is in the officers' ward an aviator who was operated in Colorado Springs, nearly a year ago, because of a post-influenzal empyema. This operation did not completely or permanently stop the fever. The patient was transferred to Chicago. Poor drainage or another pocket of pus being suspected, an x-ray plate was taken at the Presbyterian Hospital. Guided by the stereoscopic plates, the surgeon introduced long, large needles a great many times and finally located a lung abscess, the size of an egg, near the pericardium. Costectomy was done, drainage was instituted, and as a result the soldier has for months been



without fever and has gained weight up to normal. He still has some drainage, but feels remarkably well. The x-ray was of inestimable value in helping the surgeon to locate this abscess.

In one of our cases the x-ray was alone responsible for the location of a lung abscess. This patient, C. G. S., was admitted to the base hospital December 20, 1918, with influenza. On December 22 bronchopneumonia of the right lower lobe was diagnosed. On December 25, the right pleural cavity was aspirated and twenty-five cc. of a sanguino-purulent fluid was obtained. On December 26 the right pleural cavity was explored with needles, in five different locations, with negative results. Meantime the soldier developed a double otitis media with excessive discharge of purulent material. He likewise did not complain of any chest symptoms, stoutly maintaining that his lungs felt perfectly normal. It was thought for some time that the otitis media explained his persistent fever and high leucocyte count with high polymorphonuclear percentage. On December 22, whites were 44,500, polymorphonuclears ninety-one percent; whites were 18,300, polymorphonuclears ninety-two per cent, December 23, 1918; whites were 27,300, polymorphonuclears eighty-nine per cent December 24, 1918.

On January 8, 1919, one of us was called in consultation and advised an x-ray plate. This plate was interpreted as showing a walled off collection of pus, lung abscess, upper right, extending down to the interlobar fissure. On January 9, a large needle was inserted between the third and fourth ribs and between the posterior border of the scapula and the spinal column, and pus obtained.

On December 25, 1918, the pleural exudate showed:

Culture, pneumococcus type IV; smear, gram positive diplococcus.

On January 9, 1919, pus from the lung abscess showed, on culture, streptococcus non-hemolyticus and pneumococcus type I. Operation was done in two stages, January 10, 1919, resection of fifth rib was done posteriorly, behind the angle of the scapula. The parietal layer of the pleura was sep-

arated from the ribs and packed against the visceral layer by a large amount of gauze to obliterate the pleural cavity over the site of the lung abscess. The gauze was removed two days later. January 12, 1919, an opening was made into the abscess of the right lung, which was situated in the apex, posteriorly. A large rubber tube was inserted. This protruded from the posterior chest wall beneath the angle of the scapula and afforded excellent drainage. The patient has improved definitely since operation, though he is still draining and has a slight evening rise of temperature.

We are impressed with the lesson to be drawn from these two cases: be suspicious of the presence of pus even after five taps, if the patient is not doing well and continues to run fever; x-ray and explore again, guided by the picture; also, even though the cavity is apparently draining satisfactorily, if the patient is running fever and not doing well suspect another walled off cavity and explore after x-ray, or suspect your tube of not entering the old cavity and again take advantage of the assistance of the stereoscopic x-ray plate.

Our patients were mostly too desperately ill to transport to the x-ray laboratory from the pneumonia wards without great risk. It is unfortunate that the excellent portable x-ray outfits were not used freely in every suspicious case, in the pneumonia wards. Many incipient and slightly involved cases of pneumonia and empyema would have been recognized with much less strain and suffering to the patient than was imposed upon him by careful physical examination and exploratory puncture.

In this epidemic with its numerous varieties of empyema the old time classical and dependable physical signs were in many instances untrustworthy. Formerly we thought that in the adult, high pitched blowing breathing meant a consolidated lung. Now we know from exploratory experience that in many instances it means—pus. Again, we formerly felt that we could depend upon the presence of râles as negating the presence of fluid. Now we know from exploratory experience that pus will be found in some instances directly beneath the point

at which râles were heard. Pus has been even found in large quantities where dullness was only relative and the percussion note not flat. This is especially true on the left side of the chest with a distended stomach and colon beneath modifying the percussion note. Very weak or absent breath sounds were suggestive but not pathognomonic of fluid, as one often finds them with a consolidated lung. Definite displacement of the apex heart beat to the left with suggestive physical signs in the right chest is one of our most dependable signs of fluid, if this fluid is free and in fairly large amount. The leucocyte count together with the differential count were found of striking help in influencing one in his interpretation of physical signs and subsequent deductions.

The leucopenia of the initial influenza changed markedly to a definite leucocytosis running from ten to forty thousand more or less and showing a polymorphonuclear percentage running from eighty-five percent to as high as ninety-two percent or ninety-three percent in cases of pus formation.

Keeping in mind the varieties of empyema as described by Capt. Warren Vaughn, which comprehensively and truly cover the innumerable collections of pleural pus as seen in the influenzal pneumonia cases in nearly every base hospital in the country, one begins to appreciate the value of the x-ray, when in good hands; and the importance of the liberal and skillful use of the exploratory needle in the search for pleural pus. In this way many obscure cases will be diagnosed and numerous valuable lives saved.

Warren Vaughn's classification of empyema (Dec., 1918, *Journal of Laboratory and Clinical Medicine*) is as follows:

1. Primary Empyema
2. Precocious Empyema
3. Cryptic Empyema
4. Massive Empyema
5. Suppurative Polyserositis
6. Interlobar Empyema
7. Juxta-Mediastinal pus
8. Polylocular Empyema
9. Latent Empyema

The interesting and instructive observations brought out by Ballin in his classical article, should be emphasized and often repeated; the streptococcus of last year produced a thin serous or sero-purulent, rapidly developing, abundant exudate which required in many cases early and frequent aspiration till the patient recovered from his pneumonia, and not immediate costectomy. The pneumococcus produced a thick, slowly developing purulent exudate which had a great tendency to become walled off in various parts of the chest, or favored the development of metastatic abscesses; costectomy was indicated, rather than aspiration.

In conclusion we wish to emphasize the fact that our cases recovered from empyema, but died of bronchopneumonia and the attendant profound toxemia and bacteremia. In this particular our base hospital statistics are misleading, as seventy-five percent seems a high mortality percentage from empyema.

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### EMPYEMA: CLINICAL DIAGNOSIS; X-RAY DIAGNOSIS.\*

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J. N. HALL, M.D., Denver, and S. B. CHILDS,  
M.D., Denver.

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#### CLINICAL DIAGNOSIS (J. N. HALL).

The great frequency of empyema during the two winters of the war was everywhere recognized. From observation of the disease in sixteen of the army hospitals, in the South and West, I wish to present certain conclusions as to the most frequent sources of error in diagnosis, and the means of avoiding them.

The ordinary empyema, in which the pus is found in the lower half of one pleural cavity, with displacement of the heart and all of the usual signs, is rarely overlooked. Many of the less common forms escaped diagnosis, even thirty percent in certain localities being discovered by the pathologist. Amongst these varieties we may mention the following:

(a) Empyema encysted between the lobes, frequently deep in the chest, and not

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\*Read at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1919.



reaching the periphery. This has been most often found in the fissure which marks the lower border of the upper right lobe posteriorly. The absence of flatness on percussion led to neglect of puncture, and so to failure of diagnosis. Only by deep exploration could such a collection of pus be found. The x-ray laboratory was of great assistance in these cases. In two or three instances such cases were noted and the pus found and evacuated, but the incorrect diagnosis of abscess of the lung made. The milder pneumococcic forms often recovered with simple aspiration while the streptococcic infection was of grave prognosis even with early drainage. Rupture through a bronchus often occurred.

(b) Encysted empyema over the diaphragm, beneath the center of a lower lobe, is practically impossible of diagnosis by physical examination, and usually empties through a bronchus. This form especially tends to recrudescence after recovery is fairly established. The heart is less displaced than usual. The use of the needle after localization by the roentgenogram is the safest means of early diagnosis.

(c) The diagnosis often failed because an empyema of moderate size opened early into a bronchus, and only a sinus persisted. Neglect of a careful anamnesis was the main cause of the failure. I think the hemolytic streptococcic and influenzal cases perforated in this way much earlier than the pneumococcic ones. In one instance the pus was coughed up on the seventh day of the illness.

(d) Many empyemas were overlooked because the pus occurred in a thin layer over the surface of a solidified lung and added but little to the physical signs due to the pneumonia. The absence of fremitus was the most reliable sign of the presence of fluid. The failure to realize that the pus might form by the third to the sixth day of the pneumonia, and that only the most skillful use of the needle could detect it, led to many failures of diagnosis.

(e) I have seen one instance following typhoid in which empyema was overlooked because of the lack of fever. The temperature was below normal practically all of the time. It would seem that this failure of the

temperature to react to the infection might be regarded as analogous to the bradycardia so often noted after this exhausting disease.

(f) I have seen the diagnosis of empyema made repeatedly when the full diagnosis should have been pneumopyothorax. In case the fluid is acutely infectious no great harm comes from this, but I have seen most disastrous results occur from failure to recognize a tuberculous pneumopyothorax, operation being followed by permanent fistula or by death from secondary infection. There is no excuse for this error if one only examines with reasonable care, unless under very unusual conditions. Pneumothorax occurred quite frequently in connection with the influenzal pneumonias, presumably due to the same evil activity of the influenzal organisms which, according to Opie's report, wrought much damage to the bronchial mucosa, and led occasionally to interstitial emphysema. In one case seen with Dr. Freudenthal of Trinidad, such a pneumothorax occurred on the same side with a large empyema already drained for more than a week. Great relief followed evacuation of the air contained within. The occasional occurrence of an acute and highly infectious type of empyema with such cases of pneumothorax (pneumopyothorax) deserves attention.

I have seen several instances in which the diagnosis of empyema was made when the true condition was either abscess of the liver or subphrenic abscess breaking upward into the pleural cavity or the lung. I have known the same patient to be operated upon twice by different surgeons in two eastern cities, with failure to find even the sinus, through which an appendiceal subphrenic abscess had broken upward and emptied through a bronchus. Lack of care in taking the history and of skill in physical diagnosis are at the root of these failures.

(g) Unusual fluids or exudates in the pleural cavity occasionally lead to error. Thus the chylous effusion in the left chest due to injury of or compression of the chyle duct may lead to error unless the history and the examination of the fluid receive proper attention. I have withdrawn cow's

milk from the right pleural sac after its entrance into this cavity through a rupture of the esophagus which occurred in the attempt to dilate a stricture due to lye.

(h) In several instances I have known the erroneous diagnosis of empyema to be made when the pus was in the tissues of the chest wall, commonly from a typhoidal periostitis of a rib, or a tuberculosis of bone.

(i) Many errors have occurred through confusion as to the origin of pus in the chest. In the 1917 epidemic of pneumonia many instances of pericardial empyema were noted, and others of suppuration of bronchial glands, or of the lymph glands at the region of the costo-sternal articulations. If the pus is only discovered, the failure to find its exact origin may be overlooked.

(j) In a few instances the diagnosis of serous effusion was made because the fluid was withdrawn from the upper layers of the empyema, appearing so clear that no microscopic examination was made. The presence of polynuclear cells in abundance in the fluid withdrawn should have suggested aspiration lower down, because of the well recognized tendency of the effusion to separate in layers as in the glass on the laboratory table.

(k) In many instances multiple effusions occurred. I have seen two cases in which there were five separate effusions in the chest at the same time, and many cases in which there were a lesser number. A common incident was for one effusion to be opened and drained, with failure to suspect that the continuous fever was due to another one which had not been suspected.

I am sure that many practitioners fail to recognize the great frequency with which purulent collections in the chest rupture into other organs. Rupture through a bronchus is very frequent, but the pus may burrow into the pericardium, the esophagus, the abdominal cavity, or through the chest wall.

The early and skilful employment of the x-ray should obviate most of these failures, if only this be followed by skilful and persistent use of the exploring needle. The fear of failure to find pus deters too many

men from the repeated use of this invaluable means of diagnosis.

The diagnosis of unresolved pneumonia should never be made until the dull area has been repeatedly needled. Deep exploration with a needle of at least 1 mm. internal diameter, with good suction, applied as soon as the needle enters the pleural cavity, with microscopic examination of any contents found in the cavity of the needle, will solve most of these problems. If the pus has escaped through a bronchus the patient rarely recovers except in the mild pneumococcic cases unless the resulting sinus is located by repeated exploration, and drainage instituted. I have found such a sinus on the thirteenth puncture, and restored the patient to perfect health.

We need scarcely more than mention the evil consequences of failure to diagnose and drain collections of pus within the chest. We see death from sepsis, from amyloid disease, from brain abscess, from embolism, either pulmonary or systemic, from bursting of the effusion into other cavities, or necrosis of ribs or other bones, empyema necessitatis, phlebitis and a score of other complications. In the pneumococcic cases with thick, creamy pus, the danger of drowning when the abscess breaks through the lung is not to be underestimated. I have seen it occur while the surgeon was preparing for the operation in the adjoining room, and it is a grave danger in small children.

266 Metropolitan Building.

#### X-RAY DIAGNOSIS (S. B. CHILDS).

In the diagnosis of empyema by the x-ray several difficult problems often present themselves for solution before a correct interpretation can be made.

Pus, blood or serum in the pleural cavity cast similar shadows and while it is considered that pus or blood cast a denser shadow than serum yet anything more than conjecture as to the nature of the fluid is unwarranted. Hence, the x-ray findings in empyema are equally applicable to other kinds of effusion.

It is essential to bear in mind that there are two distinct forms of empyema; one, free in the pleural cavity, the other, re-



stricted by adhesions and either unilocular or sacculated.

The technic of the examination requires several postures of the patient, especially the erect, prone and lateral and any change in the fluid level in these positions is carefully noted.

When the effusion is large the heart and mediastinal contents are usually displaced more or less to the opposite side.

A small amount of free fluid is first detected generally in the costo-phrenic angle in adults, but in children its presence is often found in the axillary margin of the chest before it collects in the outer angle.

In pyo-pneumothorax the fluid level in the erect posture is horizontal, surmounted by the air which maps out the upper margin of the cavity and in changing the posture of the patient this level changes, the fluid always remaining below the air. If the chest is shaken the splash of the fluid is readily seen with the fluoroscope.

If only a moderate amount of free effusion is present without air in the cavity, it is also possible for the fluid level to alter with the change from the prone to the erect posture, the fluid in the former posture presenting a diffuse shadow over the entire or greater part of the pleural cavity, the density of this shadow varying according to the amount of fluid present, while in the latter posture the fluid seeks the lowest part of the pleural cavity with its upper margin indicated by a concave line, the axillary margin of which extends one or more inches above the center of the concavity. The upper border of this effusion, however, is never as sharply defined as that found in pyo-pneumothorax.

In an interlobar effusion which is not extensive enough to obscure the entire lung the shadow of the fluid is found in the axis of the fissure. These fissures are approximately indicated by a line drawn from the lower margin of the second rib in the axillary line to the sixth rib in the nipple line for the large fissure in each lung, and for the small fissure in the right lung, from the same position relative to the second rib to the costo-sternal junction of the fourth rib. In an empyema of the small fissure the axis

of the effusion corresponds with the line above indicated and, as the amount of fluid increases, the costo-phrenic angle is the last to be obscured by its shadow. The writer has found this point of great diagnostic value in this condition and it is regarded by him as practically pathognomonic.

In the differential diagnosis of empyema the following conditions must be considered:

1. Abscess of the lung.
2. Lobular pneumonia.
3. Lobar pneumonia.
4. Inspiration pneumonia where the large bronchus is blocked.
5. Tumor mass.
6. Subphrenic abscess.
7. Dense pleura in advanced tuberculosis.
8. Pneumothorax.

In all of these conditions the clinical history is of great service in making a differential diagnosis.

**Abscess of the lung:** The shadow of the abscess is generally smaller than in empyema and is frequently situated centrally in the upper two thirds of the lung. The periphery of the abscess is not as clear as that of a tumor mass. If the abscess has ruptured into a bronchus its location is not so easily determined, but if air and fluid are both present in the cavity, in the erect posture the appearance of a small pyopneumothorax is present. If the patient is in the prone posture the area of the abscess presents more or less of a mottled appearance.

**Lobular pneumonia:** A lobular pneumonia situated high in the upper outer fourth of the lung often affords no auscultatory evidence of its presence. A stereoroentgenogram however reveals in this form of pneumonia a fairly well circumscribed, centrally located, shadow of considerable density. Changes of posture of the patient make no change in the confines of the shadow. If the pneumonia is not localized in one area, the appearance of the lung is mottled in patches resembling the appearance of advanced tuberculosis.

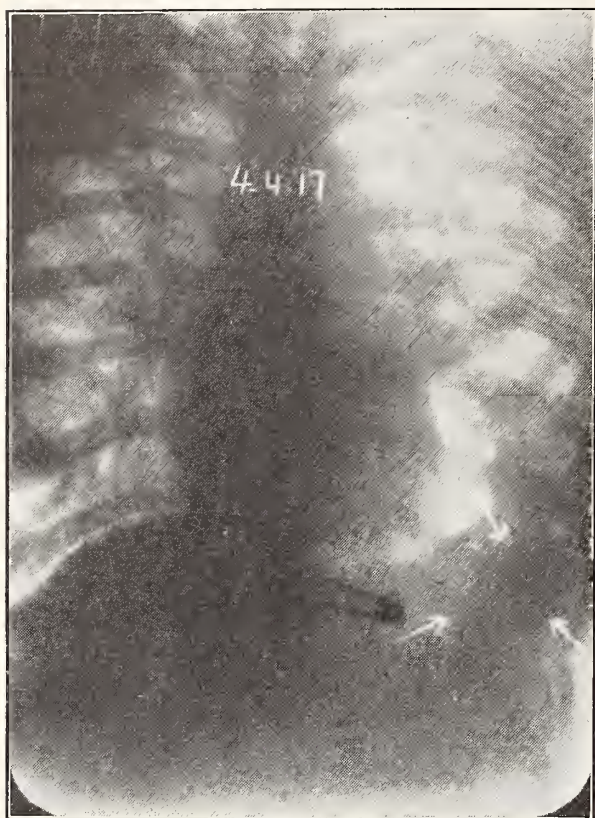
**Unresolved lobar pneumonia:** This condition is shown by a dense shadow limited by the lobe to which it is confined, the density and uniformity of this shadow correspond-



ing to the existing condition, i. e. whether the pneumonic process is entirely or partially unresolved. The shadow of an ab-

cess rarely, if ever, corresponds to the area of an entire lobe.

Inspiration pneumonia: If a common bronchus is blocked, there is formed in a comparatively short time an area of density over the entire lung resembling the shadow cast by an effusion filling the pleural cavity. In this condition the clinical history promptly differentiates.



No. 1. Circumscribed Empyema in Costophrenic Angle.



No. 3. Pyo Pneumothorax Right Lung, Patient in Erect Posture. Note Horizontal Level of Fluid.



No. 2. Pleurisy With Effusion, Patient in Erect Posture. Note Concave Upper Border of Fluid.



No. 4. Lobular Pneumonia Right Lung.



**Tumor mass:** The roentgenological picture of a tumor mass occasionally resembles closely the appearance of an abscess, but generally the borders of the tumor are more sharply defined than those of an abscess or a localized empyema.

**Subphrenic abscess:** The increased height of the fixed diaphragm, with its convex upper border should offer no great difficulty in the differential diagnosis of empyema but, occasionally, an empyema and subphrenic abscess coexist as was found in one



No. 5. Abscess Upper Part Right Lung Following Pneumonia.



No. 6. Sarcoma Upper Part Right Lung.

case referred to the writer. In this case the empyema was located in the axillary third of the pleural cavity and offered no great difficulty in diagnosis, but if it had been located in the dependent portion of the pleural cavity, an accurate diagnosis would have been difficult.

**Thickened pleura in advanced tuberculosis:** In this condition the shadow of the thick pleura may obscure the greater part of the entire lung and the heart as well, the heart being pulled to the affected side, differing in this respect from an empyema, in which condition the heart is either normally situated or, as usually happens, is pushed to the opposite side. If any lung structure can be detected the characteristic changes of tuberculosis can be readily seen.

**Pneumothorax:** This condition is so beautifully portrayed by the roentgenogram, which shows the absence of the lung structure from the air filled areas in the pleural cavity and the denser shadow of the compressed lung situated to the median side, that the diagnosis is apparent.

In conclusion I wish to emphasize the fact that the clinical history of the patient together with the physical signs by auscultation and percussion are necessary in many cases for a correct interpretation of pathological roentgen findings in the lung.

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#### DISCUSSION ON PAPERS OF DR. ARNEILL AND DRS. HALL AND CHILDS.

**L. H. McKinnie, Colorado Springs:** It was my opportunity and privilege in December, 1917, and January, 1918, to see approximately two hundred and forty-eight cases of empyema. When I arrived at Camp Bowie the big epidemic of empyema was just starting in. Seventeen cases had been operated upon when I came in; seventeen had died. The following day I resected five cases and we had five more deaths. I thought then there could be nothing worse in the way of treatment than resection. I promptly began aspiration instead of open operation. After a short time this prevailed in all the cases in which there was serofibrinous or seropurulent fluid. After that conditions began to improve. The amount aspirated was from fifty to two thousand cc. at a time, and aspiration was done as often as three times in twenty-four hours. As was well stated in one of the papers read yesterday, this empyema that we encountered carried from the beginning both streptococci and pneumococci in the same fluid, and evidently was exceedingly toxic. It was evidently a part of the process and not the whole process. We were really operating upon part of the disease. Frequently, at the beginning, I would be asked to resect a rib when the lung on the oppo-



site side was shot with broncho-pneumonia. Any of you know this was irrational. We aspirated as soon as we could, and then only for mechanical difficulties. This fluid, while it was clear, contained a great amount of fibrin and sometimes it would be necessary to put the needle in two or three times, start, and after getting a few cc.'s, block up, when we would have to start over. Even in our resection cases we encountered this difficulty of getting our tubes stopped with fibrin and they would have to be taken out and washed out. At the termination of this epidemic, or when I was ordered away from this camp, I had done one hundred and seventeen resections, with a death rate of forty-eight percent. The resections were done in a series of about thirty-eight cases with a death rate of a little less than five percent. In that series, naturally, we were getting to the time and the condition of the patients when the acute condition was over, and we were then dealing practically and entirely with the empyema. The rubber tube, with the Dakin solution, I think has its place, but I think the method can be used by putting in a good, strong rubber tube, or any of the improved methods of drainage, drawing out a certain amount of pus and keeping it closed. That will cure, just as aspiration will cure, a great many cases. I think there is one thing that must be watched carefully with the Dakin treatment, and that is cured cases, because a great many of them tend to relapse.

**O. M. Shere, Denver:** While Dr. Hall has covered the subject fully, there is one condition which has been omitted from the list of pathologic complications that may be mistaken for empyema. I refer to abscess of the liver, located in the dome of the right lobe. I have encountered three such cases in my own practice. Every one of these was diagnosed as empyema, the true pathology remaining unrecognized until the chest was opened and found negative. The last case under observation was that of a patient at the county hospital some two months ago, in which a diagnosis of empyema was made by the internist after he had withdrawn pus through the aspirating needle introduced in the seventh right interspace. Upon operation, however, the pleural cavity presented no pathology, the right diaphragm was raised much higher than its normal level and a large abscess was found in the right lobe of the liver which was evacuated by the transpleural route. I mention this case in particular in order to bring out the fact that aspiration in some of these cases may lead one to error instead of clearing up the diagnosis as we have been taught in the past. The x-ray furnishes the only means of making the correct diagnosis in these cases, particularly at the present time when by the injection of oxygen in the peritoneal cavity we can readily distinguish a collection of pus in the solid abdominal viscera.

**A. S. Taussig, Denver:** I want to speak briefly of two points, one to emphasize the point that Dr. Hall brought out about the physical signs. I believe that physical signs, as we were taught years ago, should be absolutely forgotten in making a search for empyema where there are clinical signs of pus in the chest. I have had cases in which I have been doing a pneumothorax where there was almost a complete relapse. On auscultation the breath sounds and râles were clearly heard, but on examining the case with the fluoroscope you could see an almost complete collapse of the lung. Forget absolutely the physical signs. If you have a temperature that indicates pus, have an x-ray examination made at once, and after you have confirmation with the x-ray go

after it with the needle as often as is necessary. Another point I wish to speak of is the point brought out by Dr. McKinnie. In the very small experience I had while in charge of the Denver county hospital medical service in the 1917 epidemic, I learned absolutely not to tamper with these streptococcic infections by resection until pus was present. Those cases where the fluid was withdrawn did very well, and only after the fluid became purulent were the cases turned over to the surgeon.

**D. P. Mayhew, Colorado Springs:** In the absence of Dr. Fosdick Jones, who I had hoped would be here, armed with statistics based on a considerable number of cases from U. S. A. General Hospital No. 12, I am presumptuous enough to take his place, but fortified only with memories. I succeeded him at that hospital and would like to bring out a few points in the treatment of empyema that were worked out there and also by the Empyema Commission.

In the first place, empyema cases should not be operated upon during the pneumonia stage, as Dr. McKinnie says. While this was done in 1917, the mortality was as high as eighty percent. When it was stopped, and the operation was not done until the pneumonia had subsided, the mortality dropped to below fifteen percent. In the second place, when we do operate, it is wise in my opinion, and in the opinion of the Empyema Commission, to do an operation and not an aspiration. The aspiration advocates claim good results. These results are disputed by the Empyema Commission, Major Moscovits saying: "It is a very convenient method; it is nice for the patient; it is nice for the surgeon, but it has one serious objection, and, to my mind, a very serious objection, and that is that it does not cure the patient. . . . I have had an opportunity of seeing sixty-seven cases treated by this method which were said to be cured, and in sixty-six of them which I aspirated, I found pus."

The operation should be done at the lowest point possible, preferably in the back. A thoracotomy, or a costectomy should be done, preferably in the posterior axillary line, or in the scapular line of the eighth rib. This gives the best drainage at whatever position the patient may assume.

One thing I wish to emphasize is the value of the Dakin's method. There is practically but one condition present in which Dakin's is contraindicated, and that is the presence of a bronchial fistula. However, by keeping the patient upright, Dakin's can be used, if used with care. The way some have employed Dakin's solution, introducing a small number of cubic centimeters into an aspirated or drained pleural sac, is to be condemned; Dakin's, under those conditions, promptly losing its germicidal power. To be of any value, Dakin's must be renewed frequently, because its germicidal effect lasts ten minutes, after which it is practically no better than a salt solution. The cavity should be irrigated hourly with Dakin's in sufficient quantity to more than fill the cavity. This is one of the things we absolutely worked out. If this be done, unless one of three conditions is present, that cavity can be sterilized in from ten days to two weeks, after which all Dakin's and all drainage can be removed. Those three conditions which prevent sterilization are, first, side pockets into which the Dakin's fluid cannot be forced; second, the presence of foreign bodies, of which we found a fairly large number, such as pieces of Carrel tubes or a large piece of Mackintosh; and, third, necrotic ribs. In the presence of these three conditions Dakin's will



not sterilize, but those three things being overcome, sterilization will follow. Results were checked with plate cultures and if for a certain definite time—three cultures taken at two-day intervals—we found absolute sterility, everything could be removed and the wound allowed to close, even though the pockets were of a couple of hundred cc. capacity.

**W. W. Grant, Denver:** I operated in the epidemic of 1917 and 1918 on thirty-one cases, and I do not include the serous effusions. These cases were naturally treated by aspiration. When I speak of empyema, I mean the genuine pus cases. My mortality was much smaller than any other I know of; it did not exceed twenty percent; two of those died, one from a basilar meningitis, due to abscess of the middle ear and mastoid disease, and the other from tuberculous meningitis, when the cases were convalescent, so there were really but four deaths following the empyema operation. The mortality averaged from forty-eight to fifty percent, while it was seventy-five to eighty percent in some of the cantonments. I have noticed that some speak of empyema as having been cured by aspiration. I agree with the last speaker entirely in saying that no case of empyema was ever cured by simple aspiration. I have no confidence in that procedure or method of operation which resected a rib and then closed the wound immediately. There is but one rational treatment, and that is to excise a rib and drain. By blocking the nerve above and below the rib to be resected, you could operate upon these cases without shock and with but little pain. I did not find it necessary to perform an extensive thoracotomy in a single case; all were cured by simple resection of an inch and a half of rib and drainage, commencing a day or two afterwards with irrigation. I have never been favorably impressed with the Dakin solution, the difficulty being in making it and keeping it. The beneficial effect of irrigation is often mechanical rather than chemical. I had two cases of bronchial fistula. These were put in a semi-erect position and the irrigation of the pleural cavity was performed with safety. I want to say further that the cases that were operated on very early never did as well as those that were operated on later, and I think that conforms with what we have experienced in civil life, that the cases that came to us after weeks or months generally recovered from an extensive chest operation. In the army, some died because the operations were done too early, and they did perhaps a more extensive operation than was needed. I am satisfied that I lost two of my early cases from this cause; I removed simply a section of a rib in both of these young men, and the operations were done on the seventh and eighth day. I found that the patients that I operated on at the end of the second week or the beginning of the third generally did much better, and the prognosis in all such cases was usually more favorable.

**Philip Hillkowitz, Denver:** Permit me to add a few comments on the pathology of empyema. It was my privilege during the recent flu epidemic to make autopsies on about one hundred and seventy cases, among which were a number of cases of empyema and effusions in the chest. I am glad to note the comment that Dr. Arneill made on the advantages that were given for the study of these cases, by the encouragement lent by the government in making autopsies; I hope you will pardon me if I use this as the text for a sermon to the effect that we imitate, so far as possible, this praiseworthy effort in civilian practice. The only criticism I may have to make is, that while

in his camp all the enlisted men were posted, exception was made in behalf of officers. I am pleased to state that in our camp, through the encouragement of our commanding officer, a blanket permission was given to post everybody from the commanding general down. For were we not fighting for democracy? We wanted to teach the men an object lesson, that postmortem examination is not a desecration, but an honor to the dead, and therefore there should be no exception made. We hope the time will come when both the profession and the laity will recognize that if a man is buried without having had a postmortem examination it is as if he had not been given a decent funeral rite. It is through autopsies that we will advance scientific medicine. We have been neglecting too much the lesson of pathology and the aid it gives us in the diagnosis of disease. Now, as regards the cases of empyema, I am glad that the discussion has shown that our men here have a clear conception of what the term empyema connotes and do not include in it fibrinous effusion. Some clinicians called any kind of exudate in the thoracic cavity "empyema" on the ground that it eventually becomes purulent, and were thus able to report a larger percentage of recoveries. In Camp Wadsworth, out of one hundred and seventy cases of bronchopneumonia, at autopsy there were ten cases of pus in the chest cavity, seventy-six cases with fibrin, and eighty with fluid only.

**T. A. Stoddard, Pueblo:** I have had the privilege of seeing a good many postmortem examinations of patients that have died. We had the lowest mortality rate of any camp in America, and that is saying something, but all of the cases were posted. We had a blanket order, as Dr. Hillkowitz speaks of, and every case that died or was found dead was posted; if a man was drowned, he was posted no matter what happened, and all the cases that died of pneumonia during the flu we saw, and I saw most of them and they had fluid in the chest or pleural cavity. Now, they didn't die because they had fluid in the pleural cavity, but they died of pneumonia, and if that pleural cavity had been emptied by resection of the rib the patient would have been said to have died of operation. That is not fair. When patients were operated in the active stage of pneumonia, of course they died. You were putting a load on them they could not stand. To wait until pneumonia had subsided, and then if there was fluid in the chest get rid of it, or, if during the active stage of pneumonia the fluid became so great as to embarrass the heart, an aspiration would give relief, and a reaspiration would not hurt; but to do a resection in the active stages of pneumonia is bad practice, and patients will almost invariably die, and then the fault is in doing the operation at an inopportune time.

**Fosdick Jones, Denver:** While I was on service at the United States Army General Hospital No. 12, at Biltmore, N. C., I had the opportunity of studying one hundred and forty-two cases of empyema in various stages of the disease. Most of these cases were sent to our hospital from Camp Lee, Va., under the supervision of the Empyema Commission. The vast number of empyema cases were the sequelae of the pneumonia epidemic occurring during the months of November and December of 1917. All of these cases were treated by the use of the chlorin group of antiseptics, and the routine treatment which gave by far the most satisfactory results was the Carrel-Dakin method, using the neutral solution of chlorinated soda 0.5 percent (Dakin's solution). These cases were dressed daily and the Carrel tubes changed once in the twenty-four hours. In the interim between



the dressing the Dakin solution was instilled in definite quantities; depending upon the size of the cavity, and at regular intervals during the day and night. Strict asepsis was maintained both by the surgeon and nurse attending these dressings. At least once in every seven days bacteriological cultures were taken from the sinus tract and the empyema cavity. Often these cavities, prior to operation, were found to hold from one hundred to eight hundred cc.

Dr. F. A. Stephens, who was a member of the original Empyema Commission, has described a method of outlining these empyema cavities while being studied roentgenologically. He advocates the use of sterile cottonseed oil and twenty percent bismuth subnitrate with three percent powdered acacia. This emulsion is slowly injected into the empyema cavity with a sterile syringe. The sinus is then plugged with cotton and the skiagraph taken. This method outlines the cavity much more clearly and accurately than the method of using bismuth paste.

Those of us who have had the opportunity of seeing a rather large number of empyema cases and have used the Carrel technic and Dakin's solution in the treatment are very enthusiastic, and firmly believe that this method, properly used, gives by far the most satisfactory results.

**J. C. Epler, Pueblo:** The early treatment of this class of cases as summed up by the many who have had army experience as well as private, seems to be about the same. A few words relative to the diagnosis and treatment of the "hang-overs", or those cases which you see some considerable time following previous operations: First, the matter of diagnosis; all methods should be used to determine the presence of and locate the abscess, or small pockets which have formed by the rapid agglutination of the tissues after previous drainages. The most reliable method for localization is the roentgen ray, by the fluoroscopic method, in properly skilled hands. Needling may and often does entirely fail to secure the pus which is known to exist. Second, in dealing with these chronic cases, don't satisfy yourself with simple costectomy, but remove the rib over the abscess, and as many other ribs as may be bridging the abscess, far enough back to the sides so that you will come in contact with normal pleura, then with careful search remove all adhesions, or trabeculae, breaking up the same and draining all small recesses into the main cavity, which is the best channel for drainage. Cause your partially collapsed chest wall to granulate to the thickened pleura from the bottom of the drainage cavity; do not permit this to heal up too rapidly, which is the tendency, but keep free drainage and packing in it for weeks, or until you are absolutely sure that no recesses remain.

As to Dakin's solution, the experiences are varied. I believe this, that in certain selected cases of empyema Dakin's solution is good, if the technic is followed properly, and it is never any good unless it is followed to the minutest detail. The great trouble is, in the army hospitals where great numbers follow in rapid succession, it is impossible to give the detailed attention that the Dakin treatment requires in each case.

**C. A. Powers, Denver:** Regarding the Carrel method, it is one of the most difficult things in surgery, but at the same time it is one of the most satisfactory things in surgery when it is properly carried out. It is without doubt the greatest surgical contribution made during the late war. It is finding definite application in civil surgery.

**Dr. Hall, closing:** This has been a very interesting and entertaining discussion. I want to par-

ticularly compliment Dr. McKinnie on the work he did, which I learned of while I was in the South. I think he saved the lives of a good many men by insisting upon the course which he has outlined. I have nothing to say further, except one thing: I don't believe there is a state medical society in the United States that has had the privilege in the last few years of seeing such a set of x-ray pictures of chest conditions as you have here; I never realized that all doctors in Colorado could be specialists on diseases of the chest. I was surprised in many camps to find that chest affairs were largely in the hands of men from Colorado. Perhaps you will remember there were about ten tuberculosis men in the most prominent places in the United States army; five of those were from the State of Colorado, and the other forty-seven states furnished the other five.

## THE TREATMENT OF CORNEAL CONDITIONS BY THE GENERAL PRACTITIONER.\*

WILLIAM H. CRISP, M.D., Denver.

If I were asked what was the most difficult branch of medicine, I should be disposed to answer: "General practice".

In the country districts especially, and in industrial practice, a physician does not adequately serve his community unless he is to a certain degree acquainted with all the specialties. This does not mean that he should be able to extirpate a tumor of the vocal cords, or to make a refined diagnosis of an obscure lesion of the cerebrospinal system, or to extract a piece of steel from the interior of the eyeball, but it does mean that in case of urgency he should be able to advise his patient as to the thing immediately necessary, and to take such preliminary steps in treatment as will avert those risks of subsequent disaster which may follow upon neglect or delay.

In the eye there is one structure whose integrity is of fundamental importance for the function of vision, and whose commoner injuries and diseases it is frequently the duty of the general practitioner to treat, at a stage in their development when neglect may prove fatal to the future well-being of the eye. I refer to the cornea.

The cornea in its normal state is perfectly transparent. It is composed in the main of a highly specialized fibrous tissue, covered by a layer of epithelium. In health it possesses an extremely rich nerve supply

\*Read at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1919.



but no blood vessels. It is the gateway of vision, since it is the first structure through which rays of light pass on their way to the retina.

No matter how perfect the function of the visual center, the optic tract, the retina, the vitreous, the crystalline lens, or the aqueous humor may be, and even though the eye in every other respect be perfectly adapted for sight, if the crystal clearness and perfect regularity of the cornea are destroyed in the pupillary area the power of vision is more or less extensively lost, and often beyond recovery.

What are the pathological conditions of the cornea which are often brought to the attention of the general practitioner, and with whose early care at least he should familiarize himself as thoroughly as possible?

Probably the commonest of these conditions is the presence of a foreign body upon the surface of the cornea. This may be a cinder, a particle of gravel, or quite frequently of steel or emery thrown off during the use of the emery wheel. Foreign bodies on the cornea should always be removed as promptly as possible. Their continued presence may easily result in infection and ulceration, with subsequent interference with the integrity of the cornea, and sometimes loss of the eyeball. The first essential to their removal is of course the diagnosis of their presence, and for this it is important to use a satisfactory source of illumination. For the general practitioner such illumination is commonly readily available in the form of a flashlight, which should be held to one side of the eye in such a way that the physician looks directly at the point under examination, while the light falls upon it obliquely. It is perhaps necessary to suggest that the general practitioner should realize the distinctions in depth between the iris, which lies behind the anterior chamber and aqueous humor, and the cornea, which lies in front of the anterior chamber. It is not altogether rare to find that a general physician has mistaken a spot of pigment on the iris for a foreign body on the cornea, al-

though with care this mistake is easily avoided.

When the foreign body has been definitely located, the eye should be anesthetized with a four or five percent solution of cocaine. Remember that only an interval of a minute or so is necessary after the cocaine is dropped into the eye. If the eye is watering greatly, it may be necessary to put the cocaine in two or three times. When the eye is ready, the head of the patient should be firmly supported from behind, and he should be instructed to look in a definite direction, which will at the same time keep the eye steady and bring the foreign body into such a position that it is easily seen and picked out by the physician. Removal should be undertaken under the same oblique illumination as was used for diagnosis. It is well to control the upper lid by having the patient look down and then drawing the lid upward with the thumb of the physician's left hand, before directing the patient where to look during the operation.

Perhaps the most essential detail of this procedure is thorough sterilization of the instrument employed for the removal of the foreign body, as it is probable that a rather large number of eyes are permanently damaged or lost from carelessness in this regard. The most satisfactory instrument for removal of foreign bodies from the cornea is one of the numerous spuds, but in an emergency the operation may be performed with the sterilized point of a pocket knife. Removal should be thoroughly done, including any stain which may remain after the foreign body is displaced; and if there is definite suspicion, from the amount of reaction in the eye, that infection has already occurred, it may be well to touch the site of the foreign body with some vigorous antiseptic such as pure tincture of iodine carried on the end of a tooth pick, and to instill a one percent solution of atropin every few hours until the eye is quiet. In case of doubt it is better to use the atropin than to take a chance of losing an eye.

Injury of the cornea of the coal miner by glancing particles of coal seems particularly prone to be followed by destructive ulcer-

ation, although it is not certain whether this is due to a special infection associated with the occupation, or to lowered resistance possibly connected with the absence of sunlight. From a study of a number of these cases in connection with the industrial compensation law, I feel disposed to suggest that any coal miner who within twenty-four hours or more of such an injury complains of marked discomfort in the eye affected should at once be placed under the frequent instillation, say every three hours, of a one percent solution of atropin sulphate. The ulceration occurring in these cases is usually over the pupil, and although at first an apparently simple affair it is very often followed by loss of one half or two thirds of the vision of the eye.

Once the presence of an ulcer of the cornea has been definitely determined, it is probably a safe rule for the general practitioner who cannot at once place his patient under the care of an ophthalmologist, to bring the eye under the influence of one percent solution of atropin, instilled as often as is necessary to keep the pupil thoroughly dilated, and used not less than three or four times a day.

Another corneal condition in which the general practitioner may be recommended to resort habitually to the immediate use of a one percent solution of atropin sulphate is that of penetrating injury. Wherever the cornea has been opened by an accidental injury of any kind, it is safe to say that the chances of retention of useful vision, or even of the eyeball, will be materially enhanced if the eye is promptly placed at rest under atropin sulphate used not less than once every three hours.

It thus appears that every general physician, at least in country or industrial practice, should include a solution of atropin sulphate in his office equipment.

What steps may the general practitioner take to facilitate his diagnosis and treatment of corneal conditions so far as it is either necessary or justifiable for him to undertake this line of work? In the first place, every general physician should spend at least a short time in an eye clinic where he can familiarize himself with the use of

oblique illumination. All the structures in the front of the eyeball are thrown into much more satisfactory relief and perspective under oblique illumination, and no one who understands its use should have any serious difficulty in performing the simple manipulations on the surface of the cornea. The surgeon should realize that the cornea is a very delicate and sensitive structure, and in attempting to remove a foreign body or to treat an ulcer he should carefully steady his own hand and instrument and should also make sure that the eye is properly anesthetized and that it is kept stationary by having the patient fix his gaze upon one definite spot. He should form the habit of using none but absolutely clean and sterile instruments. When in doubt as to his own understanding of the case or as to the patient's safety, he would do better to at once place the patient in the hands of a competent ophthalmologist.

530 Metropolitan Building.

#### DISCUSSION.

**George F. Libby, Denver:** Mr. President, I want to commend Dr. Crisp's very fine paper on the subject in hand. There are two little points I should like to suggest. One is this, that it is my custom in case of superficial foreign bodies in the cornea, to sterilize my hands, then twist a bit of sterile cotton on a probe and remove the foreign body on the cotton, which makes less traumatism than the use of a spud or knife-point. Failing in that simple but usually effective measure, you may resort to the other means mentioned by Dr. Crisp. And then the other point: there is nearly always a little necrosis around the foreign body. I have found it a good procedure to take the cotton-covered probe and by a quick rotary motion cleanse the little cavity where the foreign body has been and thus remove any debris.

In regard to the use of cocain as a local anesthetic, especially if the cocain is very long continued, as it often is, it is apt to cause a loss of epithelium. On the whole, holocain is rather better than cocain, unless a marked anesthetic action is desired. Cocain is, of course, very permissible, but I think that of the two the holocain is the anesthetic of choice for the removal of foreign bodies in the cornea.

**Edward Jackson, Denver:** This thought I fear is not frequently enough in the minds of those who do not deal habitually with eye lesions—the extreme importance of the cornea and the fact that the damaged cornea is never fully restored. Damage deeper than the epithelium leaves a permanent scar, and if it is within the region of the pupil, a permanent impairment of sight. Patients often come to us with corneal scars which have been diagnosed by friends as cataracts. Now, cataract can be removed and the patient given a perfect vision. But for corneal scars, there is nothing that can be done; the damage is permanent. You can have blindness from cataract, or



you can have blindness from retinal hemorrhage, and get complete recovery. But when the cornea is damaged it is more permanent. Every day that corneal inflammation goes on the damage is increasing; and later there is nothing to be done for it. There will be some recovery, there will be some improvement afterward, but chiefly the damage is permanent. That thought ought to be with every practitioner who sees a case of corneal disease; and corneal disease is regarded as entirely within the purview of the general practitioner. He must deal with corneal diseases to some extent; therefore, it is entirely worthy of emphasis by making it the subject of a paper.

**Otis Orendorff, Cañon City:** Dr. Crisp's paper is a very commendable one. I believe I differ from him a little bit in advocating the use of so much atropin by the general practitioner, because about the first thing the general practitioner does is to put a lot of atropin in the eye. There is no necessity for it, and anyway, if the case is serious enough it is apt to pass on to the ophthalmologist. Another thing I have experienced is that the practitioner is too prone to use cocain in the treatment of these corneal diseases; he is anxious to relieve the patient and he gives him cocain, and, as we all know, this has a secondary effect that is quite deleterious. The holocain would be preferable, but the holocain is not very much of an anesthetic; it is supposed to be, but I don't get very much result from it, especially if there is much inflammation.

**Harmon Tremaine, Denver:** Mr. Chairman, as a general practitioner who has seen service away from the associations you have here in the city, I should like to mention the necessity of making the patient rest the eye. The atropin is put into the eye merely to cause relaxation, and this is accomplished very largely by the resting of the eye, making it possible to use less of the drug. It is of little value to rest one eye alone—the other eye must be kept inactive, and therefore the patient himself must be quiet. In view of the point made by Dr. Jackson in regard to the damage to the cornea, the matter of rest for the future welfare of the eye is very vital; and the thing the general practitioner has more difficulty in doing, more so than the specialist, is to make the patient see the importance of obeying explicit instructions. The general practitioner does not handle anything considered very important. That goes to the specialist. It is very important that the patient's eye have complete rest, and that should be insisted upon.

**C. A. Ringle, Greeley:** I find the most difficult thing in making progress in the technic of removing a foreign body from the cornea is to get a profound anesthesia of the cornea. I believe cocain, applied judiciously, is the best drug to use in obtaining a profound anesthesia. A few of our practitioners use two percent solution. In my own work, I always use a five percent solution, guarding it very carefully, so as to do away with all possibility of cocain poisoning. Then, when we have a profound anesthesia of the cornea, we can make a very careful and detailed examination by means of illumination. The patient will hold his eye still if anesthesia is complete; otherwise he will look around, and in making those movements he will scratch the cornea and do it injury so that he will have a great deal of pain afterwards. Then, having this anesthesia, there need be no hesitation of the surgeon in performing the necessary manipulations to remove the foreign body. Otherwise it is impossible to do the work thoroughly, and perhaps the patient may have to return. Now, the second anesthesia of the cornea

is a more serious thing than the first, because it takes longer, and, of course, it is not desirable. A second anesthesia of the cornea results in more or less deterioration of the epithelium and consequent irritation, and it takes a longer time to recover.

**J. F. Conley, Colorado Springs:** I want to ask Dr. Crisp whether, in the event of an infection of the cornea, it is justifiable to use actual cautery of the corneal region?

**Dr. Crisp, closing:** In regard to the question of the actual cautery, or of any vigorous form of cauterization, that depends a good deal on the apparent severity of the corneal lesion. If you have a lesion that seems to be rather well started, I think it is always justifiable to dip the end of a toothpick in some pure nitric acid, allow the nitric acid to dry on the toothpick and then touch the area of the lesion. I am rather afraid of using the actual cautery on an early lesion, because I think I should be apt to set up more destruction of the cornea than I was trying to prevent.

I am glad to have Dr. Libby's suggestion as to using cotton on a probe for occasional foreign bodies; although most of them require more vigorous efforts at removal. And I think the suggestion to use the cotton with a rotary movement to clean out the cavity is a good one. As regards holocain, I believe that holocain for this purpose is not quite so satisfactory as cocain; and I do not believe there is any harm in using cocain for the initial anesthesia. It should be impressed upon every general practitioner that cocain is not a good drug to use repeatedly for relief of pain, and that it is a very undesirable drug to put into the patient's own hands. Holocain is very much superior for this purpose, because it does not damage the corneal tissues. In regard to the use of atropin by the general practitioner, outside of the danger of glaucoma I should rather have the general practitioner excessively prompt in the use of atropin than not to have him use it when it is necessary for the patient's well-being.

As regards resting the eye, that is a good suggestion. Sometimes the mistake is made of endeavoring to rest the eye by covering the diseased eye with a black patch and leaving the other one open and in use. Every time you leave the second eye in use, unless your bad eye is under atropin, the diseased eye is going to feel the use of the good eye, whether the former is covered up or not.

### VINCENT'S ANGINA.\*†

IRA D. SCOTT, D.M.D., Boulder.

In preparing this paper I have tried to gather together in suitable form the best information to be found in the brief articles appearing from time to time in the dental and medical journals for a number of years

\*Read at the meeting of the Colorado State Dental Association, Estes Park, Colorado, June 20, 1918.

†Although this term properly belongs to a severe infection of the throat and tonsils due to specific organisms and accompanied by actual angina, it has been so generally used in the literature in referring to the milder mouth infections more lately recognized as being due to the same organisms, that to facilitate reference and indexing it is here retained.—Ed.



past, and to combine with it my own experience and observations in the treatment of ten or twelve cases during the past two or three years. If this helps any other practitioner to avoid the difficulties I had in diagnosing and treating my first cases of this troublesome disease, I shall feel amply rewarded for my efforts. Since the sufferer from this condition is apt to present his case in its early stage to the dentist first, it is certainly most important that he should be able to diagnose and treat it intelligently and successfully before much suffering is endured and before the tissues are seriously or perhaps permanently injured.

Patients often present themselves bitterly complaining that they "have a bad case of pyorrhea". In fact they may have been told this by some other dentist or physician. But Vincent's Angina is not pyorrhea, though it may leave the gums in such an impaired condition that pyorrhea may readily follow. On the western battlefield it was known as "trench mouth," and became one of the most common disabilities of the soldiers, incapacitating them for from three days to as many weeks. It has been epidemic in some of the training camps in this country. It is an infectious and contagious ulcerative stomatitis due to the activities of the bacillus fusiformis and a long thin spirillum, easily identified by a microscopic or bacteriological examination. The two forms of microbes are invariably present at the same time.

The onset of the disease is sudden and is characterized by considerable pain in gum tissues, perhaps slight fever, general ill feeling and disinclination or even inability to apply oneself to any task. Surrounding the necks of the teeth, more frequently the in-

cisors and third molars, may be found an irregularly shaped grayish or yellowish white necrotic membrane. Upon removal a painful, freely bleeding surface is revealed. The patient will probably complain of tenderness in the glands of the neck and of difficulty in eating and swallowing. Salivation is usually present. A peculiar fetid breath is characteristic of the disease and is of value in making a diagnosis. In one case in my own practice a girl about twelve years of age first went to her physician complaining of rheumatism in her knees. The only trouble he could find was a very bad condition of her gums and he referred her to me for treatment. In two or three weeks her gums were well and her rheumatism had disappeared.

Besides the gums it may affect the tongue, cheeks, tonsils and larynx and may even appear on the preputial membrane, producing balanitis in rare cases. I have had at least one such case in my own practice. The disease lasts from five days to several weeks, depending upon the severity of the case and the kind of treatment given.

The above named features of the disease, or a microscopic examination, will readily distinguish it from diphtheria, which it in some ways resembles, or from certain forms of venereal disease. The Wassermann test is always negative unless syphilis is also present. The disease attacks both sexes and usually occurs between the ages of eighteen and thirty-five.

The bacillus may be found in normal mouths, but is not active except in case of lowered resistance of tissues. While infectious and contagious, it probably can establish itself only in weakened territory.

Early treatment is very desirable. Since lack of cleanliness is not an important factor in causing the disease and the gums are extremely tender and painful and bleed so freely at the slightest touch, all mechanical treatment should be postponed until the disease is well under control. This can be accomplished in a few days by application of some one of the following treatments:

Orthoform or a ten percent solution of cocaine may be applied to relieve the pain. Before learning the real nature of the disease





the writer successfully treated all cases by daily application of a ten percent solution of silver nitrate to all ulcerated areas, directing the patient to use warm normal salt solution or hydrogen peroxide as a mouth wash between times. Since this I have used pure trichloroacetic acid instead of the silver nitrate and while painful on application it has brought about a cure in much shorter time. It should be applied with very small pledgets of cotton and immediately neutralized by a larger pledget dipped in a saturated solution of bicarbonate of soda.

Other treatments suggested are methylene blue powder applied with cotton, though this will stain the teeth somewhat, ten percent solution of formalin, full strength argyrol and certain forms of arsenic. The forms of arsenic used are ten percent solution of salvarsan or neosalvarsan in water or glycerine, painted on ulcers one to three times daily. These are expensive and difficult to obtain. Liquor arsenicalis swabbed on ulcers of gums, mouth and tonsils three or four times a day will effect a cure, though for local treatment the ten percent silver nitrate or ten percent formalin is more effectual. If the patient cannot be seen often the following mouth wash will prove very valuable in treatment, though on account of its poisonous nature the patient should be warned not to swallow it:

Vini ipecacuanhae, six drams; glycerini, one dram; liquoris arsenicalis to make one ounce.

Hydrogen peroxide is also very valuable as a mouth wash. It should be used freely and often.

It is probably never necessary to cut away portions of gum tissue as advocated by some.

Vincent's Angina often develops under mercurial treatment, but may be easily cured and mercurial treatment continued without interruption.

In conclusion, I would suggest that every dental practitioner not familiar with it should make himself acquainted with this disease and its treatment for the reason that early recognition and treatment is very essential in order to save our patients much suffering and possibly serious consequences. In a few rare cases it has proven fatal.

## News Notes

The death of Dr. Edward P. Hershey of Denver occurred January 27, 1920. Dr. Hershey, a graduate of Jefferson Medical College, came to Denver in 1889 and was prominent in medical affairs there until the time of his death. He was an honored member of his county and state societies and of the Denver Clinical and Pathological Society, and was a medical author of considerable note.

Captain William Wiley Jones of Denver arrived in New York from overseas January 25 and was expected to return to Denver early in February. Captain Jones was on the firing line at Chateau Thierry and in the Argonne forest, and after the declaration of the armistice served six months with the army of occupation in Germany. He was then promoted to be first assistant surgeon to the surgeon general of the A. E. F., with headquarters at Paris, where he remained until the time of his departure for the United States.

The San Juan County Medical Association, at its annual meeting January 22, changed its name to the San Juan Medical Society, so as to better extend its membership to the neighboring counties of Archuleta, La Plata, Montezuma and Dolores.

Dr. Edwin D. Burkhard of Pueblo announces his return from military service and the opening of offices for practice at 544-550 Thatcher building.

Death has taken another well-liked and faithful member of the Denver fraternity in the person of Dr. T. E. Taylor, long a practitioner in that city. Dr. Taylor lectured on obstetrics for many years in the medical department of the University of Denver.

Dr. Leonard Freeman of Denver left February 7 for a six weeks' vacation trip, his itinerary taking in various parts of Cuba, Central America and South America.

Dr. W. E. Morgan, formerly of Omaha, Neb., has located in Longmont where he will be associated in practice with Dr. S. B. McFarland.

A copartnership for group practice has been formed in Pueblo, the personnel of which is as follows: F. M. Heller, Harold T. Low, J. F. Snedec, J. H. Woodbridge, Ray R. Taylor and J. C. Epler.

The Society has lost another of its members in the death of Dr. A. W. Knott of Montrose. Dr. Knott was an extremely well-loved and successful physician, and had made himself an integral part of his community during the thirteen years of his residence in Montrose.

Dr. W. A. Jolley of Boulder has been named surgeon for the Federal Board for Vocational Education in the eleventh district, comprising seven states in the Rocky Mountain region.

Drs. Edward Delehanty and Howell T. Pershing of Denver, and C. W. Thompson of Pueblo, have been appointed a commission to examine the prisoners in the Cañon City penitentiary with a view of having those prisoners found to be of unsound mind transferred to the state insane asylum at Pueblo.

The death of Dr. J. A. Rutledge, who had been superintendent of the Woodmen Sanitarium at Woodmen since 1911, occurred in San Francisco February 1. Doctor and Mrs. Rutledge were en route to Honolulu when illness of the doctor prevented their sailing. Influenzal pneumonia is said to have been the cause of death.

Dr. Elmer Ernest Southard of Cambridge, Mass., professor of neuropathology at Harvard Medical school, died February 8 of pneumonia, aged forty-four years. Dr. Southard's prominence among the profession as an alienist was more than national and his name is not unfamiliar to the public at large. He was a member of the Association of American Physicians, American Neurological Association, Boston Society of Psychiatry and Neurology, American Medico-Psychological Association, New England Society of Psychiatry, and the American Association of Pathology and Bacteriology.

#### El Paso County News.

Dr. B. A. Filmer, formerly of Colorado Springs, is now practicing in Denver.

Dr. F. A. Faust has resumed practice after an illness of several months.

Dr. E. L. Timmons has recently returned from Los Angeles, where he was called by the death of his father-in-law.

Dr. J. H. Brown has resumed practice in Colorado Springs.

Dr. W. V. Mullin has returned from Kansas City.

The annual meeting of the Mid-Western Section of the American Laryngological, Rhinological and Otolological Association will be held in Colorado Springs February 7th.

#### Cancer Control Campaign.

The December bulletin, Campaign Notes, of the American Society for the Control of Cancer devotes more than one of its four pages to a complimentary account of the activities of its Colorado Committee. It is shown that in October, November and December twenty-one lectures on cancer had been delivered in Colorado by some eleven physicians, reaching an aggregate audience of three thousand, eight hundred and eighty.

#### Course in Public Health Nursing.

The University of Colorado, University Extension Division, is offering a four months' course in public health nursing, March 1 to June 21, 1920, accredited by the National Organization for Public Health Nursing and the American Red Cross. Applicants shall be graduate nurses of accredited schools of nursing, or a limited number of senior pupils from accredited schools of nursing. They shall have had a preliminary education equivalent to four years' high school course, or such preparation as shall be deemed adequate by the director. The tuition fee will be twenty-five dollars for the course, paid in advance.

#### Annual Congress on Medical Education and Licensure.

The editor acknowledges an invitation to the Annual Congress on Medical Education and Licensure, which is to convene at the Congress Hotel, Chicago, March 1, 2, and 3, 1920. This is a tri-association meeting of the Council on Medical Education (A. M. A.), the Association of American Medical Colleges, and the Federation of State Medical Boards, of the latter of which Dr. D. A. Strickler of Denver is president. It is regretted that space is not available here for the excellent program which embraces the names of prominent educators and physicians.

#### Government Needs Physicians.

The United States Civil Service Commission announces that a large number of physicians are needed for employment in the Indian service, the public health service, the coast and geodetic survey, and the Panama Canal service. Both men and

women will be admitted to examinations, but appointing officers have the legal right to specify the sex desired. When requesting the certification of eligibles, salaries as high as \$200 a month are offered, with prospect of promotion in some branches to \$250, \$300, and higher rates for special positions. Further information and application blanks may be obtained from the secretary of the U. S. civil service board at Boston, New York, Philadelphia, Atlanta, Cincinnati, Chicago, St. Paul, St. Louis, New Orleans, Seattle or San Francisco, or from the U. S. Civil Service Commission at Washington D. C.

#### Pharmacopeial Convention, May 11, 1920.

The meeting of the Tenth Decennial Pharmacopeial Convention of the United States will be held beginning at 10 a. m., May 11, 1920, at the Willard Hotel, Washington, D. C. All incorporated bodies and other institutions entitled to membership in this convention are entitled to at once apply to Dr. Noble P. Barnes, Arlington Hotel, Washington, D. C., at least six weeks before the date of the meeting, for the necessary blanks for membership in the convention.

#### THE COLORADO STATE MEDICAL SOCIETY.

##### OFFICERS, 1919-1920.

President, F. H. McNaught, Denver.

President-elect, F. R. Spencer, Boulder.

Vice Presidents—1st, W. S. Chapman, Walsenburg; 2nd, Josephine N. Dunlop, Pueblo; 3rd, G. C. Carey, Grand Junction; 4th, B. Woodcock, Greeley.

Secretary, Crum Epler, Pueblo.

Treasurer, W. A. Sedwick, Denver; Acting Treasurer, W. H. Crisp, Denver.

Delegate to the American Medical Association, Gerald B. Webb, Colorado Springs.

Alternate, H. G. Wetherill, Denver.

##### COMMITTEES.

**Committee on Scientific Work:** A. J. Markley, Denver; Leonard Freeman, Denver; J. R. Arneill, Denver; F. B. Stephenson, Denver.

**Committee on Credentials:** G. B. Webb, Colorado Springs; W. F. Brownell, Fort Collins; C. E. Giffin, Boulder.

**Committee on Public Policy:** D. A. Strickler, Denver; O. M. Shere, Denver; C. S. Elder, Denver; T. E. Carmody, Denver; and the President and Secretary ex-officio.

**Committee on Publication:** L. B. Lockard, Denver; Melville Black, Denver; G. A. Moleen, Denver.

**Committee on Auditing:** C. T. Burnett, Denver; W. W. Wasson, Denver; F. L. Dennis, Colorado Springs.

**Committee on Necrology:** W. V. Mullin, Colorado Springs; Fritz Lassen, Pueblo; W. A. Kickland, Fort Collins.

**Committee on Medical Education:** C. N. Meader, Denver; H. Work, Pueblo; M. E. Miles, Boulder.

**Committee on Arrangements:** W. W. Crook, Glenwood Springs; A. E. Smith, Glenwood Springs.

**Committee on Workmen's Compensation Act:** O. M. Shere, Denver; F. C. Buchtel, Denver; W. W. Grant, Denver; W. W. Reed, Boulder.

**Committee on Cooperation With the State Pharmacal Association:** G. E. Neuhaus, Denver; S. Eichberg, Denver; P. Hillkowitz, Denver; G. W. Miel, Denver.

**Committee on Medical Literature:** Henry Sewall, Denver; W. A. Jayne, Denver; C. D. Spivak, Denver; W. H. Crisp, Denver.



# Medical Society

## COLORADO OPHTHALMOLOGICAL.

The regular meeting of the Colorado Ophthalmological Society was held in Denver, on December 20, 1919; Dr. H. M. Thompson presiding.

G. F. Libby and W. C. Finnoff, Denver, presented a woman who had a granulomatous swelling of the left upper lid margin following several treatments for a chalazion. Discussed by W. H. Crisp, C. E. Walker, A. C. Magruder, H. M. Thompson, and E. R. Neeper.

G. F. Libby, Denver, presented a man of sixty-two years in whom healing of a corneal ulcer had been followed by iritis in the same eye. Discussed by E. R. Neeper, W. H. Crisp, and H. M. Thompson.

D. A. Strickler, Denver, presented a boy of seven years who had been injured by explosion of a dynamite cap with which he had been playing, losing one eye completely, and suffering severe injury to the other. The question was raised as to the removal of a cataractous lens from the remaining eye. Discussed by C. E. Walker and Edward Jackson; opinions being expressed in favor of removing the lens, but after waiting a sufficient time for the inflammation in the eye to subside.

D. A. Strickler, Denver, presented a man of thirty-one years who after severe headache and vomiting had developed a complete paralysis of the left third nerve for which no definite cause could be discovered, but which was recovered from rather suddenly. Discussed by Edward Jackson, G. F. Libby, F. R. Spencer, C. E. Walker, and H. M. Thompson. Dr. Jackson gave an interesting explanation of the relationship between ocular disturbance and the recently described disease "lethargic encephalitis". Dr. Libby mentioned two cases of transient oculomotor paralysis which he had seen within a period of three days; one after pneumococcal tonsillitis, the other after severe gastrointestinal disturbance.

E. T. Boyd, Denver, presented a man of forty-four years with perfectly normal vision, each of whose optic discs showed a number of glistening masses of the kind commonly known as "drusen" ("warts"). Discussed by Edward Jackson.

J. M. Shields, Denver, presented a man aged twenty-eight years, whose eyes were normal except for a deposit of brownish, dust-like particles on the anterior surface of each lens, possibly an unusual form of persistent pupillary membrane. Discussed by W. H. Crisp.

A. C. Magruder, Colorado Springs, presented a lad of seventeen years, from the anterior chamber of whose right eye he had removed a piece of copper wire resembling one of the strands of copper used in insulated electrical wire.

A. C. Magruder, Colorado Springs, reported a case of iridocyclitis, possibly of syphilitic origin. Discussed by E. T. Boyd.

W. H. Crisp, Denver, reported a case of persistent remains of the embryonic system of bloodvessels between the optic disc and the crystalline lens, appearing as a dark cord extending completely from the optic disc to the posterior pole of the lens.

W. H. Crisp, Denver, reported a case of multiple ulcers of the lid margins apparently associated with eye strain and with infection from four putrescent tooth stumps.

W. H. Crisp, Denver, reported a case of bilateral abducens paralysis coming on after a milk

leg in a woman of twenty-eight years who had recently been confined. The two eyes were crossed, and each eye could be carried outward only about as far as the median line. Discussed by C. E. Walker, F. R. Spencer, Edward Jackson, A. C. Magruder, and W. F. Matson.

H. M. Thompson, Pueblo, reported a case of multiple lacerations at the pupillary border in a boy of thirteen years, due to a blow on the left eye with a bean shot from a bean shooter.

H. M. Thompson, Pueblo, reported a case of sympathetic iridocyclitis in a girl of six years. The left eye had suffered a severe lacerating injury from a stone thrown by a brother at play. Enucleation of the injured eye was for some time refused by the parents, and the right eye was rapidly going on to blindness although at the time of removal of the injured eye the other had only shown a moderate amount of disturbance. Discussed by Edward Jackson, W. H. Crisp, and C. E. Walker.

WM. H. CRISP,  
Secretary.

## EL PASO COUNTY.

The regular monthly meeting of the **El Paso County Medical Society** was held in the library at the Elks' Home, January 14, 1920. The following program was given:

"Accessory Sinus Disease in Relation to Chest Conditions," Drs. F. W. Brown and A. C. Magruder. Discussion by Drs. Webb, Giese, Patterson, Gilbert, Crouch, Dennis, Brown and Boyd.

"Blood Chemistry in Diagnosis, Prognosis and Treatment," Dr. O. R. Gillett. Discussion by Dr. G. B. Gilbert.

The President appointed his committees for the ensuing year.

Drs. C. H. Evans and F. W. Brown were elected to membership.

An assessment of \$3.50 was voted on each member in order to secure funds for binding the books of the library.

Dr. Waring of Denver and Dr. Wilson of India were visitors of the society.

C. E. RICHMOND,  
Secretary.

## MESA COUNTY.

The **Mesa County Medical Society** held its annual meeting on January 15, 1920, at the Y. M. C. A. building, Grand Junction.

Upon recommendation of the Board of Censors, Drs. Gothard and Fields were admitted to membership.

This being the date for election of officers, the following named were selected to serve the society for the current year:

President, H. R. Bull.

Vice President, J. E. Ford.

Secretary-Treasurer, A. G. Taylor.

Delegate, H. S. Henderson.

Alternate Delegate, A. R. Craig.

The president stated that the personnel of the usual standing committees would be announced later. He also outlined, in an informal address, the details of much important work which he expects, with the cooperation of the membership, to have accomplished during 1920 in this society.

The profession in this section of the state is duly alive to the fact that the next meeting of the State Society is to be held on the Western Slope and plans are already being considered with a view to making this meeting an unusually interesting and profitable one. However, the infer-



ence must not be drawn from this statement that our good friends from "the other side" should come to Glenwood Springs upon that occasion equipped only with bathing suits.

A. G. TAYLOR, Secretary.

#### NORTHEAST COLORADO.

The **Northeast Colorado Medical Society**, at its annual meeting January 8, 1920, elected Dr. F. E. Palmer, president; Dr. H. F. Temmins of Holyoke, vice president, and Dr. J. H. Bush, secretary-treasurer.

After the election of officers the society had its usual banquet, this year at the Episcopal church. This was enjoyed by the physicians, dentists and druggists.

Dr. F. H. McNaught of Denver, president of the state society, delivered an interesting and instructive lecture on bone surgery.

J. C. CHIPMAN, Reporter.

#### SAN JUAN MEDICAL.

The annual meeting of the **San Juan Medical Society** was held in Durango January 22, 1920, being attended by physicians from several of the cities in the basin.

The name of the organization was changed from the San Juan County Medical Association to the San Juan Medical Society. The organization was established some years ago in San Juan county, the physicians from other counties becoming members of it. Under the change in name all physicians in San Juan, Archuleta, La Plata, Montezuma and Dolores counties are eligible to membership and every effort will be made to have them join.

Meetings will be held quarterly in various cities of the basin for scientific purposes.

Officers for the society were elected as follows:

President, Dr. A. L. Burnett of Silverton.

Vice-president, Dr. A. W. Robbins of Durango.

Secretary-treasurer, Dr. F. W. E. Henkel of Silverton.

Dr. H. A. Lingenfelter was elected as a delegate to the meeting of the State Society. Dr. Henkel was chosen as alternate.

Following a discussion regarding the enforcement of the vaccination order imposed by the school board of Durango the following resolution was unanimously adopted by the members of the medical society:

We, the members of the San Juan Medical Society, at a regular meeting of the society held January 22, 1920, in view of the controversy regarding vaccination in Durango, declare and place ourselves on record to the following:

1. That we know that vaccination renders a patient immune to smallpox for a certain number of years.

2. That when properly done, vaccination is not dangerous and should cause little inconvenience and so far as our experience goes has not kept children out of school for a period longer than two days, and then in severe cases.

Whereas, One member reports cases of smallpox which in two instances were extremely dangerous and life in both cases was for a time despaired of, and there is little doubt that these patients would be willing to furnish sworn affidavits to this effect, if desired; therefore, be it

Resolved, That the San Juan Medical Society heartily endorse and support the actions of the local board of health and the school board; be it further

Resolved, That we deprecate and condemn the

insult and libelous insinuation thrust upon Miss Walsh, the school nurse. We feel that she is a great public benefactor and that her work has been all self-sacrifice and devotion to her position.

Introduced and approved by the members present.

## Book Reviews

**A Manual of Obstetrics.** By John Cooke Hirst, M.D., Associate in Obstetrics, School of Medicine, University of Pennsylvania; Obstetrician and Gynecologist to the Philadelphia General Hospital, University of Pennsylvania; Obstetrician to St. Agnes Hospital; Gynecologist to Mt. Sinai Hospital; Gynecologist to the American Hospital for Diseases of the Stomach; Fellow of the College of Physicians, Philadelphia. 216 illustrations. W. B. Saunders Company, Philadelphia and London, 1919.

This volume, as intended by the author, is a double to his *Manual of Gynecology*. It is a presentation of the subject in the briefest, most concise form possible, to be clear and not to omit facts. It is arranged according to the author's method and style of teaching, which he has used with undoubted success for twenty years. Having been put to rigid test by actual practice, all the mechanism and manipulation employed in labor and child-birth, methods of treatment and operative technic offered will probably withstand the brunt of much criticism. There are several points worthy of note and commendation, viz.: There is a new classification of deformities of the pelvis; the description of the mechanism of labor has been given great care and is much more comprehensible than that of the older text books; great emphasis is laid upon obstetric operations; a warning is sounded in the use and abuse of the obstetrical forceps, and the management of lacerations of the birth canal is well handled.

A remarkable and time-saving feature of this volume is that it has been arranged so that each principal subject is embodied in a separate chapter. Terseness, brevity, comprehensibility and absence of unprofitable discussion are splendid characteristics.

L. J. W.

#### NEW AND NON-OFFICIAL REMEDIES.

During **December** the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with New and Nonofficial Remedies:

Calco Chemical Company: Procaine-Calco.

Merck and Company: Ichthyol-Merck.

E. R. Squibb and Sons: Thyroxin-Squibb; Typhoid Paratyphoid Bacterin (Special Bacterial Vaccine No. 13)—Squibb.

Winthrop Chemical Company, Inc.: Sajodin.

During **January** the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with New and Nonofficial Remedies:

Gilliland Laboratories: Pasteur Anti-Rabic Vaccine-Gilliland; Pneumococcus Vaccine Immunizing-Gilliland.

Eli Lilly and Company: Chloroxyl.

Parmelee Pharmacal Company: Chinisol and Chinisol Tablets.

E. R. Squibb and Sons: Thromboplastin Hypodermic-Squibb.

Winthrop Chemical Company, Inc.: Veronal-Sodium.



# Colorado Medicine

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## PUBLICATION COMMITTEE.

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## Editorial Comment

### THE STATE PSYCHOPATHIC HOSPITAL.

At the last regular session of the general assembly of the state of Colorado a bill was enacted to "establish, construct, and maintain a psychopathic hospital and laboratory". It was intended that this hospital should be erected in Denver and should be a sort of clearing house for mental patients throughout the state. At this hospital curable cases were to be treated, and research was to be conducted to further the art and science of cure.

The need for such a hospital was recognized by the legislature, and the bill was passed with little opposition. Unfortunately the appropriating clause was omitted from the bill owing to lack of funds, and thus the hospital exists today only in hope and imagination.

However, a movement is now being launched by the Colorado State Medical Society to secure the appropriation through the initiative and referendum. To initiate the bill it is necessary to present a petition of twenty thousand signatures, and it is therefore proposed that every member of the state society shall be given a copy of the petition and shall be asked to secure signatures.

The task is easy. The doctor keeps the petition in his office and secures signatures from his own patients. Pleading and persuading will scarcely be necessary, as the cause pleads for itself. Every now and then the doctor will have the rare privilege and pleasure of turning the tables on some de-

tail man or insurance agent by giving him a little line of talk and securing his signature to the petition. If the doctor has much energy and public spirit, he will complete the task by presenting the petition to a few friends and getting their signatures for the psychopathic hospital.

The movement should commend itself to the Colorado physician as one meriting his sincere support, for the state is greatly in need of a psychopathic hospital. It is true that excellent work is being done at the State Hospital at Pueblo with the facilities available, but these facilities are meager in the extreme and it is scarcely possible for the hard working staff of the hospital to give the patients anything more than custodial care. Each doctor at this institution has charge of four or five hundred patients, and it can well be imagined that little time remains to him for scientific research when his day's work is finished.

But only research can solve the problems of the future and take the subject of insanity out of the realm of medieval mysticism. Eventually the psychopathic hospital must supplant the mad-house, and then the patient who is mentally sick will be studied and treated instead of being "tried" and jailed.

In the United States there are a quarter of a million people imprisoned because the medical profession does not understand the nature of insanity. This fact is not necessarily a reproach to the medical profession, but surely it is an incentive to the physician to do what he can to right so great a wrong.

Doctor, will you do your part by getting at least thirty names on your petition?

C. S. B.

## DEER-FLY FEVER.

The association of diseases with particular localities is a custom which in olden times, though fundamentally correct, often carried with it a wrong conclusion as to etiology. Modern knowledge of microscopic parasites being wanting, the most tangible things upon which investigators could place their hands were climatic environment and harmful personal habits. In a disease ostensibly of environmental origin, it was therefore natural that obscure effects were attributed to "something in the air", to "poisonous waters" etc., right as far as the explanation went, but wanting in exact knowledge of the ultimate agent. Malaria was due to something emanating from swampy places. Granting the predisposing effects of many natural conditions in the production of disease, most of the old maladies have nevertheless had their etiologic agents established as microscopic parasites, bacterial or other, so that now, when a new disease makes its appearance, one of the first things done is to institute a search for the germ—and results are usually forthcoming.

The inhabitants of rural districts of Millard County, Utah, have in recent years encountered a malady which they called alkali fever. They thought it was initiated through the bite of the deer-fly. The site of the bite becomes tender and inflamed, the regional lymph glands grow large and tender and commonly suppurate. A septic fever lasts from three to six weeks and prostration is marked. The first fatal case was reported in 1919. The disease was investigated by the U. S. Public Health Service last summer and through the usual inoculation methods a *cocco-bacillus* was shown to be the specific cause of the disease; just to what extent the deer-fly's rôle as carrier was investigated is not stated, but the initiation of the disease at the point of its bite seems to be a matter of common observation, which is rather conclusive circumstantial evidence against the insect. The *cocco-bacillus* seems to be identical with the bacterium *tularensis*, reported by McCoy and Chapin in 1912 as the cause of a plague-like disease of ground squirrels in California which in

one instance at least was transmitted to man. The autopsies on animals inoculated in Utah showed caseated glands and necrotic foci in liver and spleen; so that the possibilities of serious pathology in humans are no mean ones.

The Rocky Mountain tick fever of Montana has escaped from its original boundaries in the Bitter Root Valley, crossed into Colorado, and been encountered on the Western Slope somewhat frequently; and naturally—since we had the particular tick and herders from the infected district reached our state in their wanderings. It may be expected likewise that, given the deer-fly, (and fishermen in the western parts of the state who have felt its sting will testify that we have it) sooner or later deer-fly fever will make its appearance across the line in Colorado. Western Slope physicians may well keep a look-out for it and report any cases encountered.

## Current Comment

### PREVENTIVE INOCULATION AND THE PUBLIC.

The following summary will not only give the reader tangible figures on typhoid statistics of the army, in an easily remembered form, but will serve also to show that the lay press can and sometimes does take a sane view of the "vaccination" question, for it is quoted from Harvey's Weekly of February 14, 1919:

"Many splendid records were made in the war by the American army and navy. Not one was more creditable or more significant of blessing to the world than one which appears in the reports of the Surgeon-General. It is, in brief, that the total number of deaths in our army from typhoid fever, from September 1, 1917, to May 2, 1919, was 213. That was approximately one in every ten thousand men.

"What that means may be indicated by two comparisons. If typhoid fever had been under no better control than it was twenty years before, in the Spanish war, there would have been not only 213 but no fewer than 68,164 deaths from it. Again,



the death rate from typhoid among adult males in civil life in the United States was considerably more than twice as high as in the army.

"The explanation is simple. From the close of the Spanish war to 1909 the number of typhoid cases in the army ranged from 9.43 down to 2.49 to the thousand. In 1909 voluntary inoculation against it began to be practised, and the next year the rate dropped to 2.32. In 1911 the inoculation was made compulsory, with the result that in that very year the rate fell to .85 and by 1914 it got as low as .04 to the thousand.

"It was inevitable that with the enlistment of millions of men in the great war, the typhoid rate should increase, because of the enormous influx into the army of uninoculated men. Yet in 1917 the number of deaths was only .03, and in 1918 only .05, in the thousand, while at those very times among adult males in civil life the numbers of deaths were respectively .11 and .09 to the thousand.

"That is to say, in 1917 among a million soldiers only 30 men died of typhoid, while among a million male civilians of the same ages as the soldiers, no fewer than 110 died of the same disease.

"The value of this achievement must be recognized by all; and it inevitably raises the question of the possibility of extending to civil life the sanitary advantages now enjoyed by the army. There is among many people, we know, a strong repugnance to compulsory prophylactics or therapeutics of any kind, and there is also among some an unconquerable opposition to inoculation of any kind, compulsory or voluntary. Yet it would be a reproach to our civilization if results like those which we have cited were attained in the army, and far less favorable conditions, such as we have cited in comparison, were permitted to prevail in civil life. We should have the strange anomaly of that which is regarded as an agency for destroying life actually an agency for its protection and preservation."

## PLASTIC SURGERY THIRTY-FOUR YEARS AGO.

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When so much has been said and written about the advances in reconstructive surgery brought about by the great war, it becomes of unusual interest to look back and see what was being done in that field a generation or more ago. On that account, as well as because of its general merit, the article by Dr. Maghee in this issue of **Colorado Medicine** has been deemed well worth printing.

Done in the country hospital of a frontier town of Wyoming in 1886, when that state was in an even pre-Wister condition of wild-and-wooliness, the operation might well pass as an instance of good present-day reconstruction with the advantages of war experience back of it.

## PREVENTIVE MEDICINE CURRICULUM AT GREELEY.

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Under the auspices of the Federal Interdepartmental Board established during the war in the interest of public health, the State Teachers' College at Greeley, Colorado, has received a substantial appropriation for the organization of a department which will emphasize with appropriate and due proportion the importance of preventive medicine. To this end a series of lectures will be given at the above institution by Colorado physicians during the present school term. Among these will be several on the prevention of tuberculosis by Dr. Gerald Webb, Colorado Springs; others on the eradication of typhoid by Dr. J. N. Hall of Denver, and a further series on Social Hygiene by Dr. J. W. Ames of Denver. These addresses will be illustrated with lantern slides and every effort will be made to interest the future teaching personnel of Colorado in this important work.

## INFLUENZA SYMPOSIUM.

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In the proceedings of recent meetings of the Boulder County Medical Society ("Medical Societies", this issue) there is a symposium on influenza which deserves the read-

er's attention. Such contributions on current topics tend to enliven the journal and at the same time indicate that life is not extinct in the societies which send them in. (The Editor trusts that some kind of anitis lethargica is the worst that ails the societies that are remiss in respect to reports. He can not believe that their meetings are not worth reporting).

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### LIST OF CONSTITUENT SOCIETIES.

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The secretary of the state society not having at hand information as to new officers of the various county societies because of their failure to report their elections, the editor through circular letter requests has obtained replies from fourteen of the societies whose officers were not already known. The information is not yet complete, as the list on adv. page xvi will show. Deficiencies will be filled in when the annual reports to the secretary shall have been completed in April.

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## *Original Articles*

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### THE CONTROL OF CANCER.\*

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PHILIP HILLKOWITZ, M.D., Denver.

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The preservation of human life has within the last decade or two become one of the most important subjects for study and consideration by organized society. Humanitarian, industrial and military reasons combined to force the attention of the nation to the necessity of preventing unnecessary wastage of the human factor in our social economy. The "Safety First" movement attempts to diminish our enormous annual loss in deaths and accidents in the industries and transportation. The campaign for the preservation of infant mortality, the improvement of child hygiene and the eradication of child labor aims to preserve the rising generation from the frightful losses by disease, poor environment and industrial exploitation. The organized effort for the prevention of tuberculosis has made a wonder-

ful success in its propaganda and has effected a marked reduction in the number of deaths from the white plague. Similarly, the agencies for combating the social diseases have done praiseworthy work in revealing the damage inflicted on present and future generations through ignorance in sex hygiene. Besides the efforts of volunteer and private organizations, the government through its Public Health Service is devoting greater attention every year to the saving of human lives.

In common with these aims for social betterment there has grown up a strong movement to combat the startling large losses from a widely prevalent disease attacking particularly the middle aged and old. Cancer claims annually ninety thousand victims in the United States. Men and women in the prime of life, heads of families, breadwinners, captains of industry, useful members of the profession are often cut down at a time when their value to society is at its highest. When one realizes that one person out of ten above the age of forty succumbs to cancer, the conviction grows that no efforts are too costly for curbing this appalling loss.

We should be further stimulated in our attempt to check its ravages by the deplorable fact that cancer is steadily on the increase. It is unnecessary to dwell here on the controversy whether the increase is only apparent, due to better methods of diagnosis, or actual as an accompaniment of advancing civilization. Suffice it to say that we must seek a way to reduce the mortality.

Our first difficulty is encountered in the deeply rooted belief among the laity and to some small extent as yet in the medical profession that cancer is incurable. The average person is cognizant of the death of relatives or friends from cancer. The cured patients, for obvious reasons, do not herald their restoration. The same false belief was formerly prevalent as to the incurability of tuberculosis until the campaign of publicity launched by boards of health and the National Tuberculosis Association uprooted the illusion. Strange as it may seem, a similar view is still widely prevalent regarding syphilis. Patients will conceal evident symp-

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\*Read at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1919.



toms of a growing neoplasm from themselves and from their relatives for fear of an operation and in the firm belief of its futility.

The second obstacle we meet is the lack of early recognition of the condition. In the lay mind cancer is associated with a pain, a symptom usually absent until advanced growth has taken place. The patient does not deem it necessary to consult a physician. The profession is at times remiss in early diagnosis. A spirit of optimism or failure to make a thorough examination will cause an incipient cancer to be overlooked. Fortunately, physicians and surgeons are becoming more and more alert in the diagnosis of beginning cancer. The illustrations of advanced carcinoma in the text books and the recollection of malignant tumors with extensive metastases they had seen in their college days, no more serve as criteria for their judgment. A cancer that can be diagnosed by inspection is almost too advanced for operative removal. The facilities furnished nowadays by the pathologic laboratory in the microscopic examination of tumor tissue by frozen section, either at the operating table or within twenty-four hours, will help to clinch the certainty of the diagnosis.

The third hindrance in solving the cancer question is the difficulty of enlightening the public. The subject is not particularly inviting to the laity, who shrink from what they think is a gruesome tale. On the other hand there is a danger of causing needless alarm and the creation of neurasthenics or oncophobes, if I may coin the term. Publicity must therefore be carried on with due tact and discretion, yet without shrinking from bringing an unwelcome truth home.

The agency that has done yeoman work in this philanthropic field is the American Society for the Control of Cancer, an organization of high-minded men and women, both lay and medical, whose purpose is "the dissemination of facts in regard to cancer to the end that its mortality may be reduced by a wider knowledge of the disease". During the past six years of its existence it has published a series of tracts and pamphlets for the laity, written in simple language, which emphasize the necessity of early diagnosis by a physician and the avoid-

ance of nostrums and fake cures, and which bring them the bright "Message of Hope" that cancer is curable.

Copy for the daily press is sent out at regular intervals along the lines mentioned. Posters and circulars are also part of the literary output. The society has branches and representatives in the various states as well as a corps of lecturers who are prepared to speak on the subject of cancer before lay and medical audiences. To make the lectures more interesting and instructive a series of lantern slides has been prepared covering the scientific, statistical and sociological aspects of the problem. The society even furnishes a lecture syllabus giving a skeleton outline of facts and information to be pointed out.

Under the direction of this organization lectures have been given by members of the profession to nurses, women's clubs, mothers' congresses and fraternal and labor organizations.

The American Society for the Control of Cancer is also cooperating with other social service organizations, boards of health and the U. S. Public Health Service in diffusing a wider knowledge of cancer. Probably its most active coworker is the American Medical Association. Popular pamphlets for the laity concerning cancer in various organs, written by eminent surgeons and printed on the presses of the A. M. A. have been issued by the Council of Health and Instruction for distribution by the American Society for the Control of Cancer.

A very valuable monograph entitled "What we know about Cancer", a handbook for the medical profession, should be on the desk of every practitioner. With all the improved diagnostic keenness of the present day physician in recognizing early cancer, there is still room for further enlightenment. The subject of cancer should be an ever recurrent topic on the programs of the meetings of every medical society. There are so many aspects to the question both from a scientific and sociologic standpoint that frequent consideration need never be wearisome.

What can the individual physician do in combating this enemy of the human race?

The responsibility after all rests on him. He is the key to the situation. Scientific medicine occupies itself with prevention of disease as well as with its cure. The physician is the teacher of the community in matters of health. The people look to him for guidance and instruction. Few of us realize the potential power for good that can be wielded by the medical profession when organized with that end in view. It has its representatives in every nook and corner of the land, each one capable of influencing his clientele to support a praiseworthy cause. To put it in concrete terms, the physician can interest his lodge or his church by a popular lecture once a year on the subject of cancer; he will receive a sympathetic hearing from the women's organizations of the town; an outside speaker may be requisitioned from the American Society for the Control of Cancer to give a talk to the general public; he can also impart his enthusiasm to the nurses who often are the first to be consulted by women for the suspicious lumps in the breast or bleeding from the uterus. If every practitioner would aid this cause both by early recognition of cancer and by personal propaganda we would be well along towards our goal of one hundred percent cures.

236 Metropolitan Building.

#### DISCUSSION.

**Charles A. Powers, Denver:** I am very glad indeed that opportunity was afforded Dr. Hillkowitz to place before you this most important subject, and I heartily endorse every word which he has said.

In the brief time at my disposal I am going to say something more about the American Society for the Control of Cancer. As Dr. Hillkowitz has said, it was founded six years ago. Its work was carried on with increasing activity until this country entered the war; then it was in abeyance until this past summer, when it was taken up again. The society has for its chief object the spreading of knowledge regarding the early symptoms of cancer, and this especially among the laity. Here in Denver we have had careful ten-minute, twelve-minute, fifteen-minute talks by responsible physicians to small or large bodies of lay people. These have been made before nurses, teachers, the Parent-Teachers' Association, people who work in department stores, fraternal organizations, etc., and the speakers have endeavored in simple, non-technical, non-alarming language, to place before the laity the early symptoms of cancer. For instance, the speaker says to a body of women, "Whenever you or one of your friends notice a lump in the breast you should immediately seek competent advice. In early operation lies the hope

of cure." Further, our speakers say to the women, "When you notice an irregular flow, or an irregular discharge, especially at the time of the menopause, have it carefully considered, and immediately"; they say to a body of men, "When a man notices a non-healing sore on the lip, scab forming and falling off, he should go at once and have it carefully looked into." Dr. Hillkowitz has spoken of this little cancer booklet; it is of forty-four pages, published by the American Society for the Control of Cancer. It is entitled, "What We Know About Cancer," and it was written by a very carefully constituted committee of the society, consisting of Dr. Greenough of Boston, Dr. Francis Carter Wood of New York and Dr. Wainwright of Scranton. I hope that our committee in Colorado may be able to place a copy of this, by mail, in the hands of every member of this society; it will, I believe, be read with interest and profit by every practitioner of medicine, no matter in what special branch he may be particularly interested.

**T. A. Stoddard, Pueblo:** This, I believe, is the most important subject that will come before this meeting. Dr. Hillkowitz has already told you that ninety thousand of our people in the United States, continental United States, die every year of cancer. I am not going to speak of it in a general way so much as in a particular way. Of these ninety thousand who die of cancer, about twenty thousand are women having cancer of the reproductive organs, or of the breast—one-fourth, nearly, of the whole number of deaths from cancer. Now the question of getting the public interested and educated is of great importance. They are becoming educated, and I believe that the laity are better educated today along this line than the medical profession, and it is a shame. It is a disgrace. Women today, if they find a lump in the breast, will go to a physician. Sometimes he will be wise enough to say, "A neoplasm in the breast, if left alone, will almost always, if not always, become malignant. Cut it out before it is malignant." But, unfortunately, there are sometimes physicians who will say, "That doesn't amount to anything, I wouldn't bother about that—oh, just leave it alone", and the patient will go away and in a little while it begins to trouble, and it is then almost too late for anything to be done. Or, a patient will consult a physician about an unusual vaginal discharge, and she will feel that she knows something about this cancer proposition; she does know a whole lot about it, and she is a little afraid, and she will say: "Doctor, I have had change of life for the last five or six months, but I began to flow again, and it is irregular."

"Oh, that almost always happens", says the doctor. "You go on; here is a little medicine." He writes a prescription, and she goes on until the possibility of anything being done is passed. Now, this is too true. I am not painting a picture; that is of general occurrence; it is too true in many cases. Within the past week another physician brought a patient to my office who had been under the care of physicians and under active vaginal treatment for eight months. I found a carcinoma of the cervix involving the whole of the vaginal wall, the bladder wall and rectum, and beyond the possibility of surgical treatment. It is too bad for things like that to occur in these days, so I say the profession itself should be educated as well as the laity. It is a subject important enough to demand our very careful attention.

**O. M. Shere, Denver:** The subject of the essayist merits not only discussion, but high commen-



dation. I want to emphasize the point made by Dr. Stoddard, that not so much the laity, but the profession ought to be awakened. It is just such papers as these that will stimulate and arouse interest in cases that are supposedly malignant. While I do not agree with Dr. Stoddard, who says that many cases become malignant, I believe the tendency is for cases that are malignant to stay malignant, and that all malignant cases that were at one time looked upon as benign were malignant from the start. I think that should be brought home. And I believe that by remembering just this point in the pathology most of us will make a diagnosis of malignancy much sooner than is done today when the stand is taken that a growth is benign today and may become malignant. Let us consider these cases malignant as soon as there is any suspicion of malignancy; and the only way to eliminate the possibility is by removal and by a pathological diagnosis which is made thorough. Many times a specimen will go to a pathologist who will take a section from one end or the other and pronounce it benign, when, if he were to take numerous sections, he would find one showing malignancy beyond the shadow of a doubt. I have in mind such cases which have occurred in my own practice. A specimen from a man was sent and reported benign, and three months later the man was beyond any help. The same is true in many cases of cancer or ulcer. So, that is one point; and the second point I would like to insist upon is this: When a patient comes to your office or consults you for some suspicious growth or suspicious lump, or whatever it might be, anywhere in the body, even though you are absolutely convinced that there is no sign of malignancy, the proper thing to do, in justice to that patient, is not merely to discharge him with saying, "It is nothing to worry about; just go to your business or work," but tell that patient, "I am not certain," and have him come to see you again, and as often as possible; and if it is malignant, if malignancy is established beyond a doubt, that person may get as early a cure as possible.

I think the society is greatly indebted to Dr. Hillkowitz for bringing this subject before it.

**C. G. Hickey, Denver:** I feel, as the other men who have spoken, that we are indebted to Dr. Hillkowitz for bringing this matter a little more closely to us. In going over the death records filed with the Colorado State Board of Health for 1918, I find that six hundred and eighty-nine deaths took place from cancer during that year alone. I want to say a further thing with reference to the reporting of cancer. This state, as every other state, ought to insist upon the accumulation of facts with reference to the occurrence of cancer. We ought not to be obliged to wait until the patient is dead before we know something about it. I want to say that during the year 1918 there was not a single case of cancer reported to the State Board of Health. There is not one of you who does not know by this time, I presume, it having been brought to your attention three and a half years ago, that in Colorado cancer is a reportable disease. Three years ago last winter a list of reportable diseases was established in this state to correspond with the requirements of the United States Public Health Service; they were asking for the reports of cancer, and it was included as one of the diseases of unknown origin. I am asking that you will give your hearty and loyal cooperation to the State Board of Health of Colorado by reporting, just as promptly as you report diseases of other sorts, every case of cancer which comes under your observation. We are indebted very greatly, I am

sure, to the work of the American Society for the Control of Cancer, and some of the facts which they have brought to our attention are certainly very startling. Some of you may have seen in the daily papers some matter that was taken from a publication which is sent out by that society. They put the matter in this very graphic way: "In the two years' war, or rather during the two years in which this country was actively engaged in war, something like eighty thousand soldiers had died; during those same two years one hundred and eighty thousand people had died of cancer in the United States." It puts it in a very graphic way which must appeal to us, and I want to say that an attempt was made, but proved to be too late to get it into the program of this society, to have a public meeting held at this time with an exhibition of the slides which Dr. Hillkowitz has told you about, a meeting which should be held not only for the profession but for the public; and as far as Denver is concerned such a meeting is to be arranged, I believe, sometime in the near future.

**Dr. Hillkowitz, closing:** I am gratified that the paper has brought forth such an interesting discussion, and while the contents of my humble effort covered mainly the sociological side, yet considerable of the medical and scientific factors were injected into the discussion, for which I am very glad, because it is on more familiar ground that I am treading. As regards the causation of cancer, of course we know nothing. The statement was made, both in the paper and also by one of the speakers, that the profession is still not up to as high a standard as it should be in the early recognition of cancer. It is true, we see as yet too many cases of advanced cancer that should have been recognized earlier, in which the chance of cure would have been a whole lot better. Permit me to comment on the statement frequently made of a benign tumor becoming malignant. Naturally I look at it not in the way the clinician does, but from the standpoint of the pathologist. It is practically the consensus of opinion among pathologists that a malignant tumor is malignant from the start and does not arise from a benign growth. We therefore look askance at such a term as "malignant degeneration". If it is cancer, it is cancer from the start. If it is a benign neoplasm, for example a fibroma, it is going to remain a fibroma. It may happen, of course, that a carcinoma may start in a breast which is already the seat of a fibroma—that does not mean that the fibroma has turned into cancer. The indication for operation is equally clear. There is no reason for a woman with a fibroma of the breast to carry it any farther. Any kind of a tumor is an excrescence and should be removed. Nobody can tell by mere palpation whether a certain swelling is a benign tumor or a malignant tumor until it is exposed, and as long as it is going to be opened it might as well be taken out. We are all agreed on this point—that any kind of a tumor should be removed, and the laity has to be instructed accordingly. Dr. Hickey touched upon the statistical reports regarding cancer. Our statistics on cancer are subject to the traditional human error. For instance, a patient will die of cancer and no autopsy be made; the only thing found on examination was an enlargement of the liver. The attending physician may set down cancer of the liver as the cause of death. But primary cancer of the liver is extremely rare. The chances are it was carcinoma of the stomach or of the gall bladder; therefore, the statistics are subject to considerable error. If we can impress upon the physician, as is being done by the So-



ciety for the Control of Cancer, to cooperate with the United States Census Bureau, we will accomplish wonderful results, I believe. A movement has been started to get the cooperation of the physicians in giving a more detailed report of cancer and blanks have been issued requesting information on the exact site, e. g., cervix or body of uterus, etc. These improved statistics will help us forge more links in the chain of investigation as to the mysterious cause of cancer.

## A CASE OF RECONSTRUCTIVE SURGERY OF THE FACE.

THOMAS G. MAGHEE, M.D., Lander, Wyo.

George Webb, aged about fifty-three, a Scotchman, shepherd for sixteen years, attempted suicide November 2nd, 1886, in a sheepwagon south of Rawlins, Wyoming.

Reclining on his bed, he placed a shotgun containing a charge of eighteen buckshot in each barrel on his body, pressed the muzzle under his chin and fired one charge with his foot. The chin, lips, nose, anterior portions of the mandible and alveolar border of the superior maxilla, in fact every thing from the pomum adami to the tip of the nasal bone was destroyed. The left side of his neck, beyond the protection of his heavy beard, was badly burned by powder. Having been brought thirty miles to Rawlins, he was placed in my hospital and the wound was cleansed of impacted, partly burned whiskers, bloodclots, clothing, etc. (Cut 1.) When sloughing ceased the powder-burnt ends of the lower jaw bones were removed at the insertions of the second molar teeth.

The tissues of the cheeks on either side having been incised and loosened, a bridge was thrown across the gaping cavity. The torn ends of the genio-and mylohyoidei, genio-hyoglossi and digastric muscles were attached to the inferior side of this bridge, union taking place readily.

The material to replace the upper lip and fill below the bridge was taken in several sections from the forearms by making parallel incisions an inch and three quarters apart, across the dorsal aspects, loosening the included tissue the width of the arm from the fascia, a piece of muslin bandage being then inserted under the dissected portion to prevent reunion.

When sufficient thickening of the flap had occurred, it was severed entirely on the ul-

nar side, and about two thirds on the radial; thickening and vascularization increased and in a couple of days the arm was placed in a convenient position across the face and, with the wrist and hand, was securely fastened with adhesive and bandage to strips of sheet iron forming a cap or head dress, the arm being thus rendered immovable. The flap was then turned up and secured in place to vivified tissue, with fine silk sutures.

Constant attention prevented accident for seventy-two hours, when the remaining connection with the arm was severed and the portion yet unattached placed and secured in position.

Some of the flaps, failing to unite, sloughed, but repeated attempts resulted in filling the space below the bridge, reforming the chin, and replacing the upper lip. The cuticular surface of the transplanted tissue was intentionally turned inward and hair bearing integument was partially dissected and placed by sliding over the granulating and the vivified surfaces in amount sufficient to cover them.

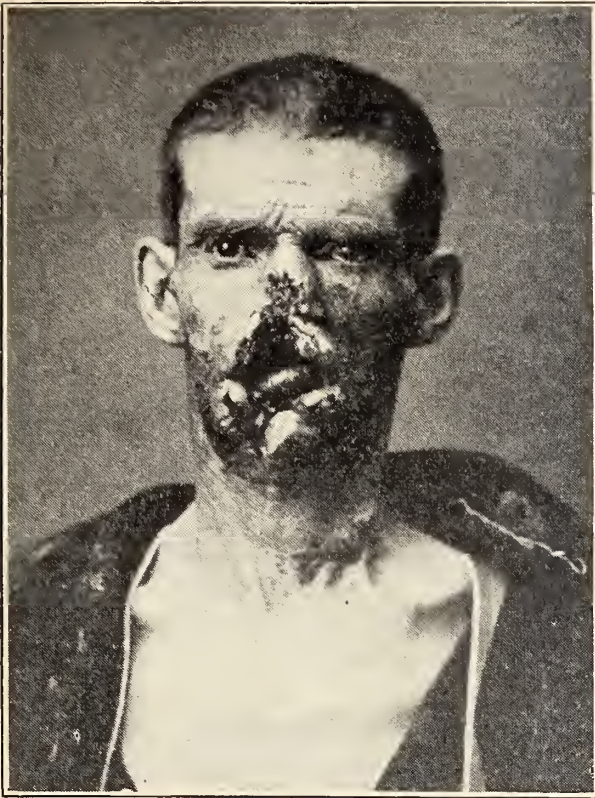
The septum of the nose was restored from the balls of the thumbs, and the balance of the organ from the small remaining portion of the ala nasi of the left side and from other parts of the hands.

While a very respectable nose resulted, the fact that all such restorations contract and shrink away determined me to dissect a large flap from the forehead, and, twisting it on its remaining connection with the skin between the eyebrows, bring it downward to cover the nose already formed. The edges were sutured to the vivified integument along the sides of the nose, and the tongue-like projection, taken from the hairy scalp, turned down and fastened to the lip as an addition to the already formed septum. (Cuts 2 and 3.) The pedicle of the flap was not severed, the blood supply remaining normal.

The nose, at first enormous, shrank to one third of its size, as expected, remaining of proper proportions and fairly good shape, blushing and paling with the rest of the face.

For some weeks hair grew from the septum, attaining a length of two inches but,

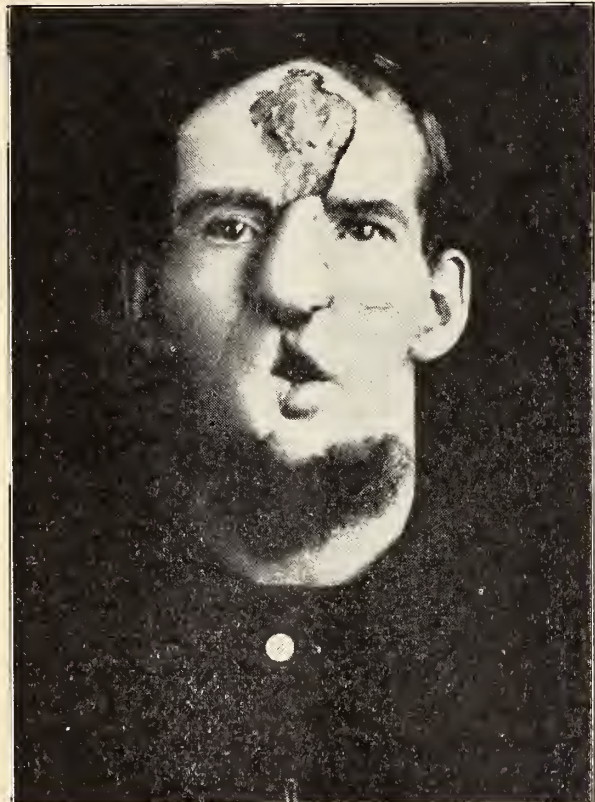




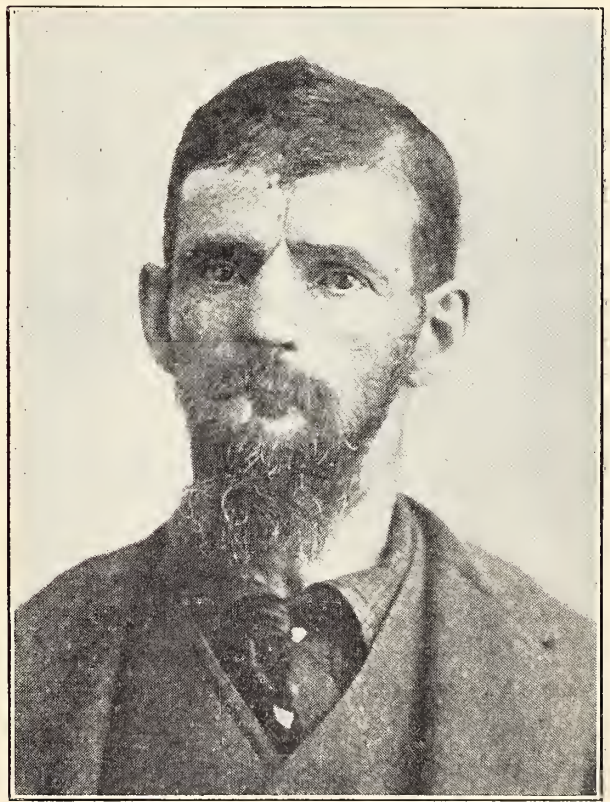
Cut No. 1.



Cut No. 2.



Cut No. 3.



Cut No. 4.

as usual in such cases, disappeared gradually.

A bony nodule commenced to form where the digastric and other muscles were at-

tached to the bridge, now the completed chin; processes extended from the ends of the inferior maxillae, until a rather acute arch, somewhat foreshortened, was com-



pleted, enabling the patient to wear artificial teeth. At this time the mouth was one-sided, and did not close properly, and quite a nick remained in the right side of the upper lip. (Cut 3.)

A bistoury was thrust through the cheek where the right corner of the mouth should be and carried forward, enlarging the opening; the cuticle was removed from the edges of the lip already formed, the remains of the notch in the upper lip closed, and red membrane from the inside of the mouth was brought out and fastened with fine silk sutures to the skin at the outer edge of the vivified surface, in such a manner as to simulate the natural outward roll of the lips as nearly as possible. The mouth now closed properly, and was natural in size and appearance.

The denuded portions of the forehead, cheeks, hands and forearms cicatrized rapidly. Whiskers grew abundantly on the lips and chin. (Cut 4.) There were thirty-nine operations under profound chloroform anesthesia, the first done November 12th, 1886, and the last April 27th, 1887.

As will be seen, the methods of some preceding operators were used, but I believe I was original in not severing the pedicle, thus preserving the circulation and preventing undue shrinking and discoloration of the nose; also in applying one graft after another as quickly as each adhered, cicatrization and contraction therefore proceeding simultaneously and producing more symmetrical and satisfactory results.

Webb returned to sheepherding, and was seen in Los Angeles, California, in 1905. The scars have become fine white lines or have entirely disappeared, the nose is natural in size, shape and color and there is nothing about his face to attract particular attention or cause remark.

#### NEW AND NONOFFICIAL REMEDIES.

During February the following articles were accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Nonproprietary Articles: Eucatropine; Phenacaine.

Gilliland Laboratories: Gonococcus Vaccine (Polyvalent) (Gilliland); Staphylococcus Vaccine (Albus and Aureus) (Gilliland).

Werner Drug and Chemical Co.: Eucatropine-Werner; Phenacaine-Werner.

#### VACCINE THERAPY IN PERTUSSIS.\*

G. M. BLICKENSDECKER, M.D., Denver.

The discovery by Bordet and Gengou, in 1906, of the organism which bears their joint names has led to an attempt to place the prevention and treatment of pertussis on a rational and scientific basis.

The findings of these men have been confirmed by leading bacteriologists over the entire world, and it has been proved beyond the shadow of a doubt that this organism is the specific cause of whooping-cough. The bacillus is present in large numbers in the sputum during the catarrhal stage, but as the disease progresses fewer and fewer specific bacilli are found, while more and more of other organisms common to the respiratory passages are present.

The use of vaccines quickly followed the discovery of the germ and has met with varying results in the hands of different workers.

During an epidemic in the New York Hebrew Infant Asylum, in 1914, Hess<sup>1</sup> inoculated one hundred and forty-one children with phophylactic vaccine prepared in the city laboratory, and only six cases, or four percent, developed the disease.

As a control in this series, seventy-five cases were not inoculated, and fifty-nine developed whooping-cough. At St. Margaret's House in Albany one hundred and sixty-four children who had been exposed were inoculated, and eleven cases, or seven percent, developed pertussis.

Luttinger<sup>2</sup> of New York, one of the strongest exponents of vaccine therapy in pertussis, and who was in constant attendance for two years at the whooping-cough clinic established in New York under supervision of Dr. Wm. S. Park, finds from Park's official report that in one series of cases over six hundred children were given prophylactic injections of pertussis vaccine. Of these not all gave a clear history of exposure; three hundred and sixty-eight cases, however, had such a history, and these were divided into two classes: (1) Those already showing symptoms of the disease, such as

\*Read at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1919.



cough and even slight vomiting, to whom the vaccine was given with the intention of aborting the disease, and (2) those who, although exposed constantly to the disease for two weeks or less, had developed no symptoms, and on whom the administration of the vaccine was intended to act as a true prophylactic. Of the six hundred cases inoculated, thirty-seven percent contracted the disease and sixty-three percent did not. Of those showing symptoms, forty-seven percent contracted it, while in fifty-three percent the disease was apparently aborted. The patients showing no symptoms whatever were nearly all protected—ninety-four percent. Hoag<sup>3</sup> inoculated seventeen children all of whom had been exposed, with the result that none of them contracted the disease.

Von Sholly<sup>4</sup>, Blum, and Smith, who did work together as part of the investigation by the research laboratory of the New York health department on the value of pertussis vaccine, are not so enthusiastic as some of the other workers. They inoculated forty-nine children who had been exposed in their immediate families. Of these, nineteen received injections of influenza vaccine and thirty received injections of pertussis vaccine. Some of these children were coughing slightly when injected. The coughs ran a variable course, but none of the children developed a characteristic pertussis. This would indicate that influenza vaccine as well as pertussis vaccine protected against pertussis. They also state, however, that they can show by their figures that of two hundred and sixty-seven children exposed to whooping-cough in families who showed partial immunity to pertussis, and who were not vaccinated against it, fifty-eight percent did not contract it. Their conclusion therefore is that the value of pertussis vaccine is questionable.

The writer's personal experience with the vaccine as a prophylactic agent comprises twenty-seven cases, all of whom were exposed by dwelling in houses where the disease prevailed. Of these, five were already showing symptoms of the onset, having coughs, and one had vomited. This one child developed a whoop, but the case was mild

and the cough lasted but a few days. The four other cases were apparently aborted. Of the remaining twenty-two who were inoculated, three developed the disease, but the cases were all mild and ran a short course. Nineteen did not develop a cough.

Concerning vaccine as a curative measure, there is a greater diversity of opinion.

Shaw states that in his series of cases he did not have as much success with the therapeutic use as with the prophylactic use of the vaccines, but that he did see definite improvement in forty to fifty percent of the cases. These were the cases treated in St. Margaret's House. He further states that in private practice he had seen a very decided improvement in some of his cases after two or three inoculations. Bloom<sup>5</sup> of New Orleans, in a paper published in 1919, takes as a title for his paper, "Vaccine Therapy—The Most Rational and Effective Method of Treating Whooping-Cough". He reaches this conclusion after exhaustive research through an extensive literature on this subject. Reynolds<sup>6</sup>, in a series of fifty-one cases, believes that there is virtue in the unmixed pertussis vaccine, but more virtue in the mixed vaccine. Shaw, in a study of one hundred and twelve cases in which the vaccine was used as a therapeutic agent, states that the course of the disease was shortened, but that the results are not so striking as in prophylaxis. He, however, earnestly recommends their use. Luttinger tabulated one thousand, one hundred and one cases, of which nine hundred and fifty-two were treated with vaccine and the remaining one hundred and forty-nine with drugs. The total average duration of the paroxysmal stage, irrespective of the time when treatment was begun, was nearly thirty-seven days, while the one hundred and forty-nine cases treated with drugs had an average duration of more than fifty days. The average paroxysmal stage given by various authorities is from four to six weeks.

In the treatment of these cases, Luttinger noted that the amelioration of the symptoms was more striking than the shortening of the duration of the paroxysmal stage. The frequency and severity of the paroxysms were lessened; the vomiting ceased; the

children slept better and were less restless, and their general condition was improved. He concludes that the use of vaccines is justified by the results obtained.

Von Sholly, Blum, and Smith, on the other hand, are very skeptical about the value of the vaccine, either as a therapeutic agent or as a prophylactic. In one group of cases which they treated, one hundred and thirty-six cases were given pertussis vaccine, the average duration of the whoop being thirty-two days; ninety-four cases were given influenza vaccine, and the whoop averaged thirty-five days. Thirty-four cases as controls were given injections of sterile milk, highly diluted, or treated with terpin hydrate, and the whoop averaged but twenty-six days.

Their conclusion is that the prophylactic and curative value of pertussis vaccine has not been proved.

The thirty-six cases treated and recorded by the writer were all seen in private practice. None of them were in institutions. They were all in the paroxysmal stage when treatment was begun. The mixed vaccine was used in all cases, each cubic centimeter containing 1,800,000,000 bacteria of the following formula:

*Bacillus pertussis*, 1,000,000,000.

*Staphylococcus pyogens aureus*, 500,000,000.

*Streptococcus pyogens*, 100,000,000.

*Micrococcus catarrhalis*, 40,000,000.

*Bacillus influenzae*, 100,000,000.

The initial dose in infants and young children was one-fourth cubic centimeter; in older children, one-half cubic centimeter. The dose was doubled at each injection until it reached one cubic centimeter in the older ones and one-half cubic centimeter in the younger ones. The first cases treated received the injections at three-day intervals, but later they were administered at two-day intervals; and four very severe cases were given an injection daily for three successive days, then a day omitted and thereafter injections were given at two-day intervals. Twenty-eight cases showed various grades of improvement. In eight cases no improvement was noted. One child who had whooped for two weeks ceased whooping after the

first injection and received no more vaccine; another, who had been whooping five weeks, and had retained no food for four days, vomiting with every paroxysm, and having, according to the statement of the mother, more than one hundred paroxysms in twenty-four hours, ceased whooping entirely after the third injection. Her brother, who had been whooping three weeks, was also vomiting frequently, although he did retain some food. His paroxysms were not quite so severe nor so frequent as were his sister's, and they ceased after the fourth injection.

These children were much emaciated and debilitated, but improvement in their general condition was marked after the vomiting ceased. In most of the cases, the statements of the mother had to be depended on in noting improvement, but in many the improvement could be seen. Each mother was instructed to count and record the number of paroxysms occurring in twenty-four hours, the number of vomiting spells, and the severity of each paroxysm.

The cases showing improvement received no other treatment during the paroxysmal stage, except an abdominal binder which was used in an attempt to control the vomiting. The eight cases which did not show improvement with the vaccines were treated symptomatically with drugs.

After the paroxysmal stage had passed, all cases were given a cough mixture containing a sedative expectorant, and cod-liver oil and tonics when indicated. Hygienic conditions were improved wherever possible, and the children were kept in well-ventilated rooms, or allowed to play in their own yards. They were given a nourishing diet, with a minimum amount of liquids during the vomiting period.

In no case was a reaction, either local or general, observed. No attempt was made to use an autogenous vaccine, as the specimens are too difficult to obtain. No fatalities occurred. Two cases were complicated with bronchopneumonia and one case with acute otitis media, all in infants.

In summing up the evidence for and against pertussis vaccine by other writers on the subject, and adding the evidence obtained by



my own limited experience, I find my belief to be that in pertussis vaccine we have the most valuable agent in the prophylaxis and treatment of pertussis that is known to medical science today. There is a general consensus of opinion that the prophylactic are better than the therapeutic results. A significant point to me is that the more recent writers on the subject have been using larger doses of the vaccine, some giving as high as 8,000,000,000 bacteria at a dose. These are largely the observers who are reporting favorable results.

Another point that has impressed me is that cases treated in private practice show better results than those treated in institutions. The latter, however, seem to have better facilities for gathering statistics.

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#### DISCUSSION.

**F. P. Gengenbach, Denver:** When the treatment with pertussis vaccine was first broached to me some years ago, I was rather skeptical about the effects, but the consensus of opinion seems to be developing so much in its favor that there must be something helpful about it. Recent developments would indicate that the rather poor results we had before might be accounted for by two things: first, that we did not give large enough doses, and second, that we did not give fresh enough vaccine. Dr. Alfred Hess of New York has done quite a little work with pertussis vaccine in the Hebrew Infant Asylum there, and he was rather disappointed in his results with it. He had tried it out in a number of cases, gradually increasing the dosage and also using fresh vaccine, but still felt that he was not getting the results the other men were getting, and as he is a very scientific man I was rather influenced by what he said. However, it remains true that the men who are the most enthusiastic are the men who are using the largest doses. Dr. Bloom of New Orleans, quoted by Dr. Blickensderfer, is the most enthusiastic of all. He advises giving not less than five billion bacteria at a dose. He repeats this every day for at least three days, mak-

ing fifteen billion as the minimum dosage, and he has even tried to give larger doses, up to eight billion, at a time. The work of Dr. Huenekens of Minneapolis seems to throw some light on the value of fresh vaccine. He had the opportunity to test out the vaccine as a prophylactic, using as a check the complement fixation test. He made two reports, and the first report was rather dubious, while the second was much more favorable, but in the meantime he had begun to use larger doses and much fresher vaccine. He used some stock vaccine about two or three months old and the result was that in one series of cases he found that the immune bodies only appeared in about twelve and a half percent of cases; then he tried some fresher vaccine, about one month or four weeks old, and got the complement fixation test in about twenty-five percent of cases; when he got down to about two weeks old vaccine he got seventy-five percent; with one-week-old vaccine, about ninety-four percent, and in vaccine less than a week old he got reactions in one hundred percent. Now, the mere getting of anti-bodies does not mean that the child becomes entirely immune to whooping cough, but if you can develop enough anti-bodies the chances are that he will be immune. It seems to me, therefore, that the two factors that have to be considered are the dosage and age of the vaccine. The minimum first dose should be a billion, and then a billion and a half or two billion, and some men, like Bloom, are giving five billion bacteria; in the second place, it must be freshly prepared, and Huenekens points out the fact that in using the fresh vaccine you do not need a preservative. Now, the question in my mind is whether we can get vaccine prepared freshly enough. These men have laboratories at their command where they can make vaccine and have it less than a week old. Most of us, however, have to depend on stock vaccines, and I think that is a matter that will have to be taken up with the large pharmaceutical houses in order to see if they can find some way to deliver fresh vaccine to us when we need it.

**Emanuel Friedman, Denver:** In spite of the very satisfactory results reported in the literature, and also the results of Dr. Blickensderfer, which were quite satisfactory, I think a note of warning is not out of place against the too-ready use of vaccines, not only in whooping cough, but in all other infectious diseases. When we use vaccines we are groping very much in the dark. We very seldom take the pains to determine what particular organism is responsible for the trouble which we are trying to correct, and in nearly every instance we are using a shotgun prescription. Take, for instance, the pertussis vaccine; it contains about five different organisms, and we know that pertussis is caused only by one micro-organism, and that is the Bordet-Gengou bacillus. Those who have used this vaccine state that no alarming symptoms have been encountered in its use. This may be so; nevertheless, I can readily imagine certain conditions in which disturbing symptoms may follow the use of any vaccine. Now, take, for instance, a child that is susceptible to colds, a child who is asthmatic, or a child suffering from lymphatic diathesis: give such child a large dose of vaccine and you might get disturbing symptoms and you might even get very alarming symptoms. Then we know the injection of any foreign protein is followed by the so-called negative phase. This usually lasts two or three days and is characterized by a low resistance on the part of the patient. All of the defensive mechanisms are very much in abeyance, and it is easily imaginable that during this particular stage organisms, such



as the pneumococcus, which are always present in the throat and bronchi may gain the ascendancy and cause a very serious infection. I don't say we should not use pertussis vaccine at all, but I say this, that we should not use it too readily; it should not be used as a routine measure, but only when other measures fail.

**W. F. Singer, Pueblo:** I have listened to this paper with a good deal of interest, because it calls to my mind considerable experience with pertussis in the last twenty-three years. One experience that seems to me to be of a great deal of value, and which I should have reported before, is this: I came back from a trip east and found a little baby ill with pertussis. When I reached the house the child was in collapse and seemed to me to need a stimulant immediately to save its life. I got out my hypodermic syringe for the purpose of injecting some brandy and found the syringe broken. I therefore reflected that the best possible way was to have the child inhale the brandy. I poured it on a cloth and made the child inhale it and I was very much surprised at the immediate relief. I directed that if the child showed any bad symptoms it should immediately be allowed to inhale the brandy again. The next day I found the mother out on the lawn; the child started to cough and she gave it inhalations and immediately stopped the paroxysms. I was surprised, and I reflected upon it, and a little later I had another case and directed that the mother give inhalations of brandy or whisky, and a like result was obtained. We in the general craft do not see as many cases as the special men do, but I can look back over my scattered cases and see that I have had very good results by these inhalations of alcohol. I should like very much to have the special men try this, and I would be deeply interested to hear of the results.

**Dr. Blickensderfer, closing:** I have very little to add to what has already been said. The vaccine that was used in all of my cases was the regular mixed stock vaccine prepared by Parke, Davis and Company. I had no opportunity of knowing exactly how fresh it was, although it came within the time limit as given on each bottle. Those who have been doing the most work with it lay considerable stress on the importance of having a freshly made vaccine. The large doses are the ones that have given me results. In my early experience with pertussis vaccine, when we were giving it in doses of fifteen to forty millions of bacteria, no results were obtained; at least, I could not see that it influenced the course of the disease one way or another, but any of the other remedies that I was using at that time was equally ineffective, and in desperation I began giving larger doses in an effort to do something for those children.

Concerning reactions from the vaccine: In a résumé of the literature made in preparing this paper I found no instance where there had ever been observed an unfavorable reaction of any kind, nor have I myself met with any. In reply to Dr. Friedman's remarks about using the vaccine as a last resort, I cannot agree with that, because I think the earlier in the disease the vaccine is used the better the results obtained, and if you wait until the child has become run down and is in a desperate condition from the repeated vomiting and failure to retain food, then I do not see how we can expect very much from the use of the vaccine. I am using the vaccine in the early stages. When the infection is at its height is the time I get the results from it. I was much interested in hearing Dr. Singer's report on the inhalations of alcohol in the treatment of pertussis. I have had

no experience with it, but it certainly seems to me it is worth while trying after hearing what he has said on the subject.

## TUBERCULOSIS IN THE ARMY.\*

G. H. CATTERMOLLE, M.D., Boulder.

With the declaration of war by the United States the Surgeon General's office began at once the organization of boards whose duty it would be to examine all troops for tuberculosis. In July, 1917, these boards began their work by examining the officers and men belonging to the regular army. This work took about three months and then the same boards were employed in examining the members of the national guard and the national army. The members of these examining boards were selected from among men experienced in the care of the tuberculous, and the boards were enlarged by civilian doctors who expressed a desire to do this work. These doctors were given a short course of instruction before entering on their duties. Later this personnel was largely transferred to the general hospitals for the care of the tuberculous.

The examination showed that less than one percent of active tuberculosis existed among the regulars and also among the recruits who were sent in from civil life. The majority of these active cases were in an early stage of the disease. All cases showing activity were discharged from the service. Those cases showing fibrosis or healed lesions were retained in the service unless the disease was so extensive in both lungs as to prevent usefulness of the man.

Some degree of fibrosis in the right apex was very common. Among seven hundred negroes who were members of the Ohio national guard fibrosis of greater or less extent was present in nearly all, but they had been carefully selected and there were almost no active cases among them. It would be interesting to know how many of these men developed active tuberculosis in the service. We did not see these northern negroes in the southern hospitals, but we took care of many negroes from the South in the hospitals at Asheville, N. C., and Spartan-

\*Read at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1919.



burg, S. C. We cannot make a satisfactory comparison between the negro from the North, who was seen only at the entrance examination, and the southern negro, who had been sent to the hospital with active lung trouble, but from our observation the northern negro is a much more rugged type and less likely to succumb to tuberculosis.

Tuberculous soldiers were sent to zone hospitals. That is, if their homes were in the North they were sent to New Haven, Otisville, or Markleton; if they were from the Middle West they were sent to Denver or Fort Bayard; those from the far West were sent to Prescott, and those from the South were sent to Asheville, Waynesville and Spartanburg. There were special hospitals for tuberculosis at all of these places.

The epidemic of influenza had a great influence on the number of cases of tuberculosis and other pulmonary diseases which occurred among the troops, so that in nearly every case that entered the hospitals for the care of tuberculosis there was a history of influenza, bronchopneumonia or prolonged bronchial trouble following exposure. There were no epidemics of influenza in the hospitals where I was stationed. This may be explained by the fact that the majority of the patients had suffered from an attack of influenza before coming into the hospitals for tuberculosis and had acquired some degree of immunity, or, as my colleague, Dr. Simon, believes, they had acquired immunity by having had influenza in years past. Gasping was not an important factor in the activation of tuberculosis.

The common history was that the patient had been sent to a field or base hospital. The surgeon had found moisture in the chest. In the majority of cases this was an unresolved bronchopneumonia. In other cases it was the activation of an old tuberculous lesion. Such cases had usually been placed under observation for tuberculosis. This diagnosis appeared on their field cards and it was almost impossible to get a change of diagnosis, so that they usually passed through the chain of hospitals in France and were sent home as tuberculous patients, and finally entered the general hospitals for diagnosis and treatment.

Fortunately, the majority of these men had recovered by the time they reached the hospitals in this country. The forced rest and the sea voyage had cured them. In others, the physical signs and the x-ray picture were those of unresolved bronchopneumonia. In still others there was active tuberculosis of greater or less extent.

It was instructive to learn in how many instances of active tuberculosis the patient gave a history of having had the disease before entrance into the service. Many of these had been treated in sanatoria for this disease prior to induction into the service. They showed old lesions, as well as the new. It would have been much better for the patient and would have saved great expense to the government if these men had been excluded from the draft. However, these chronic cases often did better than the acute ones, who had not acquired any degree of immunity.

Diagnosis and prognosis were very important features in the hospitals for the care of the tuberculous. If a patient had acquired this disease in the service the government was responsible for his care. As a matter of fact, all cases found have been provided for in the same manner, whether they gave a history of having the disease prior to entrance into the service or not. They were taken care of in the hospitals as long as necessary, and when discharged were given a certain percentage of disability with pension.

Many of the patients in the hospitals had healed lesions, no fever, no râles, and were as well as they would ever be, but it was not easy to get such patients out of the hospitals. They must either be returned to duty or discharged from the service as well men, or given a discharge with disability, and any one of these required a great deal of formality and weeks or months of time. When the expense for their care was so great and the need of room in the hospital was so urgent this delay seemed a great mistake to the civilian doctors.

Other patients with active trouble grew better and were discharged as having reached the maximum amount of improvement. Such cases were given a certain

amount of pension, depending on their disability. Other cases progressed steadily to a fatal termination.

Autopsies were made on practically all of the fatal cases in these hospitals and the results were very instructive. It was remarkable that men could live on to such an advanced stage of the disease. White men were more likely to show widespread involvement in both lungs, while negroes commonly showed the infantile type of the disease with great enlargement and caseation of the bronchial glands, or extensive involvement of the peritoneum, or miliary tuberculosis with meningeal symptoms. It was often remarkable how much lung tissue could be destroyed and the man still live, but it was also gratifying to see how much lung involvement some of our patients could have and still recover, at least, to an arrest of the symptoms.

The results of treatment in these army hospitals were very satisfactory. Cases with slight or moderate pulmonary involvement improved promptly. The treatment consisted in rest, nutritious food, and the maximum of sunshine and fresh air. Light work was prescribed for those who were able to engage in it for a few hours each day. After the cessation of hostilities every one was anxious to get home, and to secure contentment for our patients was one of our greatest problems. Under rest and open-air life fever subsided, nutrition and weight improved, and râles disappeared. The patients then felt a sense of well-being and began to clamor to be released so that they could return to their families. This was where the vocational training came to our aid and furnished the patients with something to do and something to think about.

Although the great majority of the active cases showed the chief lesion in the lungs, there were quite a large number where nearly all of the trouble was in the abdomen. Negroes commonly showed extensive tuberculous peritonitis and enteritis, with some enlargement of the bronchial lymph nodes and almost no involvement of the lung. In some of these cases the abdomen was opened in the hope that the process might be checked by such simple procedure, but the

general results were not satisfactory. Several such cases developed fecal fistulae at the site of the incision, which remained open until the death of the patient and made a most distressing condition.

In some of the negroes who came to autopsy the size of the mediastinal lymph nodes reminded one of sarcoma. Whether syphilis had any influence in causing these large glands I cannot say, but many of the tuberculous negroes also had syphilis. We did not find a single case of syphilis of the lung.

The tuberculous process in some instances seemed to select the serous membranes, the pleural sac being obliterated and replaced by a tuberculous membrane one-fourth of an inch or more in thickness; and in such cases the peritoneum was usually involved, thus showing a predilection for certain tissues, a polyserositis followed by adhesions.

Where the pulmonary tissue was chiefly involved the oldest lesion was usually near the apex. Here there was fibrous tissue and cavity formation; below this was dense infiltration with caseation, and still lower peribronchial thickening with areas of functioning lung. The disease apparently progresses from the apex toward the base.

In a negro infirmary ward containing about forty desperately sick men the death rate suddenly increased, and at autopsy it was found that the part of their lungs which had been functioning was red and congested. This led to the belief that there was some secondary infection in the ward, and an examination showed that nearly all had hemolytic streptococci in their upper respiratory tracts. Further investigation showed the same infection in patients of other wards, but they were in better physical condition and had more resistance.

Some of our mistakes in diagnosis should be instructive and show the need of great care and the help to be derived from laboratory methods:

A man came in with mild trouble in the left lung. This improved and he was ready for discharge when suddenly he developed severe pain in the left shoulder and dullness with bronchial breathing at the apex. The diagnosis of pneumonia was made. Next



day the lower lobe was dull and there was distant bronchial breathing. The dullness increased and the patient died suddenly. Autopsy showed empyema, but no pneumonia. There was a large encysted empyema between the upper and lower lobes which gave the first symptoms at the apex.

In another instance a man entered with a history of tuberculosis existing over several months. He was very sick and had râles in all lobes. A diagnosis of tuberculosis involving all the lobes was made. Autopsy two days later showed bilateral pleurisy and no tuberculosis. In such cases as these the x-ray examination was of great aid in differential diagnosis. The early use of the exploring needle should be encouraged and its use repeated in all doubtful cases. The laboratories were very complete and well conducted in these army general hospitals.

Spontaneous pneumothorax was a very frequent complication of our cases and we believe that the type of infection in the epidemic of influenza had an influence in causing more spontaneous pneumothorax than is present in normal times.

After the age of four years there is a strong tendency for all tuberculous lesions to heal. New proof of this is demonstrated by the recent work of Dr. W. V. Mullin of Colorado Springs, who showed that "in patients with pulmonary tuberculosis in which the laryngoscopic picture showed absolutely no evidence of tuberculosis, densities were found by stereoscopic x-ray plates, and on pathological examination these densities proved to be tuberculous lesions (healed), never coming to the surface. This would show that arrested tuberculous laryngitis was far more frequent than supposed".

Following the teaching of Col. Bushnell and others, we believe that tuberculosis is usually contracted in childhood. Immunity is acquired gradually and it is not absolute. Some of the infection remains in most of us and this becomes active when we are debilitated from any cause. The influenza epidemic, exposure and fatigue, all worked together to increase the number of cases of active tuberculosis which occurred among American troops.

When our soldiers were found to have

any pulmonary trouble they were given rest and good care, so that, as said before, many of them had recovered before they reached the hospitals in this country, but in the future much can be done to reduce the number of cases of tuberculosis by declining to take men who have any history or evidence of past active pulmonary disease.

#### DISCUSSION.

**Saling Simon, Denver:** I don't think it is necessary to discuss the paper in detail, as Dr. Cattermole has made his points very clear, and it therefore remains for me only to emphasize some of them.

The tuberculous patients in the hospitals were singularly free from influenza, and, as has been stated, this was probably due to recent influenzal infection or possibly to a former infection that conferred the immunity. It is also possible that as tuberculous patients not infrequently have a chronic influenza, a relative immunity may have been present. Frequently patients with unresolved pneumonia were sent to the hospital labeled as tuberculous, and since my return to practice I continue to see patients of this class; the history of the onset of the pneumonia, in some instances dating back over nine months, is given as a light attack of influenza lasting several days, accompanied by a fever of 102° to 103°.

Another interesting point is the question of adult infection with the tubercle bacillus. The army teaching is that tuberculous infection occurs in early childhood, and that clinical tuberculosis develops in adult life not from a new infection, but from a lighting up of the old. We should accept this teaching with some circumspection, although the weight of evidence is against the frequent occurrence of adult infection. Much of Hamburg has shown that when individuals coming from countries where tuberculosis is unknown are brought in contact with the tubercle bacillus, they develop the acute form of tuberculosis. Not having the early childhood infection which is believed to confer immunity, these individuals develop the acute rather than the chronic form of tuberculosis; at the same time, it indicates that adult infection does occur.

In closing I want to say that the medical men of Colorado might well be proud of the record made by so many of their number while in the army.

**M. I. Marshach, Denver:** I listened very attentively to Dr. Cattermole's paper and he certainly did cover the ground. However, there are a couple of things that impressed me while in the service, and these two things were influenza and gas. I made a complete study of our gas cases and found that about fifty percent of the overseas cases were gassed. In studying these gas cases we found that only ten percent of them were active; the rest of them either had no tuberculosis, or if they had tuberculosis had old fibroid lesions, and had never broken down under gas; that at the time they were gassed they probably had a little bronchitis, and at the examination these old fibroid lesions were discovered and they were sent through the base hospital, and gradually got over to the general hospitals here; when we found them we found that they still had their old fibroid lesions, with absolutely no evidence of active tu-



berculosis. The active cases of gassing were divided into two kinds—those who had tuberculosis and those who had no tuberculosis. Those who had tuberculosis were few and far between. The great majority of those who were active in the army sense had basal lesions, and these lesions were either diagnosed as probable abscesses or, most frequently, bronchitis, showing that the gas damaged the bronchi, rather than the alveolar structure of the lung. Our influenza cases at General Hospital 21 showed this feature mostly—they were peri-bronchial in type. We had very few cases giving a history of influenza. Their lesions were peri-bronchial and they cleared up fast, except those which developed basal lesions, showing an unresolved bronchopneumonia.

**C. T. Burnett, Denver:** I was very much interested in Dr. Cattermole's statement that there was practically no, or very little, pulmonary tuberculosis among the negroes and that the prevailing type was glandular or infantile; and in connection with that, Dr. Simon's remark on the origin of tuberculosis, that it is a childhood infection. It seems to me there may be an opportunity here for some information on this subject. I am not informed as to the practice of nursing in the South. My impression has been that the negro mothers are more prone to nurse their children than the white mother. If that is the case, possibly we can get some further information on the cause of tuberculosis. Is the milk supply more defective in the South than in the North? Because in most communities they have to buy from the general supply, and it is quite probable that the southern negro, buying a municipal supply of milk, would be of about the same grade as the white person in the same station in life.

**A. S. Taussig, Denver:** The point that Dr. Cattermole brought out about the existence of paratuberculosis is one I think should be a great deal thought of; I have never heard of that, but it brings one thing well before us. Certainly the United States should take cognizance of the fact that the milk supply in the southern states should be looked after. The whole question of tuberculosis has been neglected throughout this country. The statistics such as Dr. Cattermole has given us certainly show that unless we look after our milk supply we are going to have a race that will not be able to stand the gaff, so to speak, and I hope statistics such as this will bring about a more thorough investigation of the milk supply throughout this country.

## News Notes

Dr. Harry N. Krohn of Denver left with Mrs. Krohn for California February 22nd for a stay of perhaps two months. The trip was taken because of the ill health of Mrs. Krohn.

Dr. Mary R. Stratton of Denver left for the East on February 13th, where she will do post-graduate work in nose, throat and ear.

Dr. B. M. Steinberg of Pueblo discontinued practice in that city September 1st, and has since been in New York City taking special work in dermatology, which specialty he expects to practice exclusively in Denver after the first of June.

Dr. A. J. Löf of Denver has been spending a four weeks' vacation in California.

Dr. A. H. Faith, who has practiced in Grand County for the past nine years, died in Denver February 21st at the age of fifty-nine years. Dr. Faith's home was in Kremmling. He was affiliated with the Denver county society.

Dr. W. M. Spitzer of Denver expects to leave on March 17th to attend the American Urological Association meeting, after which he will eke out a vacation in the neighborhood of his old home in Virginia.

Dr. J. G. Pace, formerly of Lincoln, Neb., is the new superintendent of the Modern Woodmen Sanitarium at Colorado Springs, succeeding the late J. A. Rutledge.

Improvements to cost \$200,000 will be started shortly by the Modern Woodmen at their sanitarium at Colorado Springs; these will include a nurses' home, an assembly hall and a vocational therapy department.

Dr. Norman R. Sullivan has resigned from the navy after a seven-year service and settled in Grand Junction. Dr. Sullivan was formerly an Aspen man.

Dr. Henly W. Allen, a pioneer of Boulder County, died February 14th at Boulder, rounding out a life of eighty-one years, the last fifty-six of which were spent in Colorado. Dr. Allen was a prominent Mason and was widely known as a physician and for his prominence in public affairs.

Dr. Lewis E. Lemen, for thirty-seven years a prominent physician and surgeon of Denver, died at his home February 17th at the age of seventy. He was born in Belleville, Ill., April 1, 1849, and graduated from the Missouri Medical College in 1871, immediately after which he came to Colorado and settled at Georgetown. In 1883 he removed to Denver, where he has continued to practice his profession to the time of his last illness. Dr. Lemen took an active interest in public affairs, having been at various times city physician, a member of the State Board of Health and one of Denver's school board. He was surgeon for the Union Pacific R. R. until last year, when he retired because of failing health.

Motion pictures showing the surgical uses of dichloramine-T will be displayed at the April A. M. A. meeting at New Orleans by The Abbott Laboratories of Chicago. All physicians attending this meeting are cordially invited to see these and other interesting pictures of recent medical and surgical procedures.

Some six or more copies of the February **Colorado Medicine**, on the Denver hand-delivery list, were not delivered because the labels were lost through insecure pasting by the printers. Anyone on that list who failed to receive the February number may have it by telephoning the editor.

### Boulder News.

The following notes concern the work of the Boulder-Colorado Sanitarium:

Dr. H. A. Green, medical superintendent of the Boulder-Colorado Sanitarium, spent a week in Kansas City recently.

The sanitarium has made a number of improvements to aid in its medical and surgical work. The most important of these improvements consists in an addition to the main building, adding about thirty rooms to the capacity of the institution. The larger number of these rooms are equipped with private bath. In this annex a modern and well-equipped surgical department has been installed. The x-ray department of the institution has been enlarged and new and modern equipment installed, so that at the present time the institution is prepared to handle all lines of roentgen ray work.

Improvements have also been made in the nose and throat department. The obstetrical department has been enlarged, making it possible to accommodate a greater number of patients. The grounds surrounding the institution are being



beautified and prepared for the summer. The water from a splendid spring has been piped on the campus in front of the main building, where a constant supply of pure water is available.

Plans have been made for the erection of a modern building for a nurses' home. This will have thirty or thirty-five rooms and is to be completely modern in every respect.

#### Colorado School of Tuberculosis.

The editor is in receipt of the following announcement, through its president, of the organization of a Colorado School of Tuberculosis. It is self-explanatory:

"During 1919 the Colorado School of Tuberculosis was organized in this city along lines similar to the Trudeau School of Tuberculosis, and the first course was held, occupying six weeks, among the members and instructors of the school.

"The following physicians and surgeons of Colorado Springs were elected officers and directors of the school:

"President: Dr. Gerald B. Webb.

"Managing Director: Dr. Philip A. Loomis.

"Secretary: Dr. G. Burton Gilbert.

"Executive Committee: Dr. C. O. Giese, Dr. H. W. Hoagland, Dr. P. A. Loomis, Dr. J. A. Rutledge, Dr. G. B. Webb.

"Directors: Drs. F. L. Dennis, A. M. Forster, C. F. Gardiner, C. O. Giese, J. A. Hart, H. W. Hoagland, P. L. Hanford, P. A. Loomis, L. H. McKinnie, W. V. Mullin, J. A. Rutledge, W. H. Swan, C. F. Stough, B. Tucker, A. C. Magruder, G. B. Webb.

"Instructors: Drs. E. J. Brady, L. W. Bortree, L. G. Brown, L. R. Allen, E. D. Downing, W. F. Drea, F. A. Forney, H. C. Goodson, C. E. Harris, L. C. Huelsmann, G. B. Gilbert, J. B. Crouch, C. F. Kramer, J. B. Hartwell, D. P. Mayhew, C. W. Mills, C. T. Ryder, S. W. Schaefer, F. L. Stevens, M. E. Stainos.

"The next course will begin August 2, 1920, and last to September 10th."

#### Anesthesia Research Society Organized.

Announcement is made of the launching of the National Anesthesia Research Society, with the avowed purpose of collecting data and prosecuting original research in this field of medicine.

The Research Committee, which will have supervision of original work and the editing of material designed for the profession and professional press, is headed by F. H. McMechan, A.M., M.D., of Avon Lake, Ohio, editor of the quarterly supplement of the American Year Book of Anesthesia and Analgesia. W. I. Jones, D.D.S., president of the Interstate Anesthetists' Association, will have an active part in the committee's work. Representative anesthetists of the country who have distinguished themselves by research and progress in their field are being invited to join the committee.

The society has been endowed with limited funds which will permit it to demonstrate that there is a field of usefulness for it.

#### Abbott Company Celebrates Thirtieth Anniversary.

The thirtieth anniversary of the founding of The Abbott Laboratories is being celebrated this month. This firm has recently established the precedent in the pharmaceutical field of placing its employes on a profit-sharing basis.

## Medical Societies

### BOULDER COUNTY.

On January 6, 1920, the **Boulder County Medical Society** had its first graduate lecture program of the Medical Extension Course of Instruction, as follows:

R. W. Arndt: Intraabdominal conditions.

O. M. Shere: Surgical aspect of intraabdominal conditions.

F. H. Cary: Preliminary care of pregnancy.

On January 7th the annual meeting was held at the Boulder-Colorado Sanitarium, the society being entertained by that institution with a most enjoyable banquet at 6:30 o'clock, after which, in business session, the following officers were elected for the year: J. M. Braden, Lafayette, president; A. J. Hetherington, Boulder, first vice president; W. L. Snair, Louisville, second vice president; Walter K. Reed, Boulder, secretary-treasurer; M. L. Johnson, Boulder, reporter; O. M. Gilbert, Boulder, E. B. Queal, Boulder, C. E. Giffin, Boulder, censors; Carbon Gillaspie, Boulder, delegate to state meeting; C. E. Giffin, Boulder, alternate delegate to state meeting.

On January 22nd a preliminary report of the vital statistics for the County of Boulder was presented by Mr. Lee of the extension department of the university; a full report to be published later.

On January 31st a special meeting was called at the request of city health officer Poley for consideration of the flu situation. Twenty physicians present reported a widespread infection, mostly of a mild nature as yet, with thirty cases under observation.

All suspected, as well as positive, cases are to be reported promptly for quarantine of patient and attendant; the paved streets of the business district to be flushed daily; a spitting campaign to be started, with a fine of five dollars for violation.

As advised by the agreement of members present, Monday, February 2nd, the schools, university and moving picture houses were closed, and all public gatherings stopped, to check the epidemic.

On February 12th, at the regular meeting of the society held in Physicians' Hall, the following symposium on influenza was presented, talks being limited to ten minutes:

#### SYMPOSIUM ON INFLUENZA.

Robert Groom: **Epidemiology and Bacteriology.** The first recorded epidemic of flu was in 412 B. C., mentioned by Hippocrates. Since then influenza has been endemic in some part of the world. Numerous epidemics and pandemics have followed at various intervals; the most notable ones are the epidemics of 1510, 1557, 1580 (the first real pandemic); 1709-12 pandemic; 1729-33, beginning in Russia and finally reaching America; 1742-43, spreading from Russia to Europe and then to America; 1757-67, various epidemics in North America; 1781-82, decided pandemic, starting in China in 1781 and in Russia in 1782; 1788-90, pandemic starting in Russia; 1830-33, epidemics over the entire world; 1847-48, pandemic beginning in France; 1889-90, pandemic beginning in Russia (very extensive and important); 1918-19, pandemic beginning in Spain, from which we are still suffering.

There is little doubt that the pandemic influenza and endemic and epidemic "grippe" are the same disease; whether they are due to the influ-



enza bacillus discovered by Pfeiffer in 1892 is questionable, the arguments against this as the cause being:

(1) The Pfeiffer bacillus is not found in every case.

(2) The Pfeiffer bacillus alone produces leukocytosis, while in the beginning of influenza leukopenia is found.

(3) Antibodies to the influenza bacillus can be demonstrated only in those cases where the Pfeiffer bacillus can be recovered.

(4) The Pfeiffer bacillus has been found in cases of whooping cough, measles, scarlet fever and rheumatic conditions.

(5) Bowman and Connor of Johns Hopkins have grown a minute coccoid organism from a filtrate of the lung, kidney and sputum of cases of influenza. With this organism they have been able to produce experimental influenza in animals and have later recovered the same organism. Others have found streptococci, staphylococci and various pneumococci in influenza, either in combination with Pfeiffer's bacillus or without it.

The most important characteristics of pandemic influenza are:

(1) The appearance of true pandemics at long intervals, occasionally more than a decade apart.

(2) Usually a demonstrable origin in some part of the world (most frequently in Russia).

(3) Rapid spread over the world.

(4) Extensive affection of the inhabitants in each locality.

(5) Rapid disappearance of the disease after it reaches its acme.

(6) Entire independence of all atmospheric conditions.

(7) Enormous morbidity and remarkably low mortality.

(8) Uniform affection of all ages and occupations.

As rapid as is the spread of the disease, it does not travel faster than our fastest means of communication; and with increasing speed in travel, we find a corresponding speed of spread of influenza in each succeeding pandemic.

In 1848 the pandemic started in Moscow, reaching London in five months and America by the eleventh month; while in 1889, starting in Moscow, the disease reached London in the third month and San Francisco by the seventh month.

Each pandemic has attacked from one-third to one-half the population, while the death rate from influenza itself has been one-half to two percent; the total death rate during epidemics is increased forty to fifty percent, making a death rate of fifteen to twenty percent from influenza and its complications.

During October, 1918, the death rate in New York, Baltimore and Chicago increased fifty percent over the death rate in October, 1917.

That influenza is a grave disease can no longer be doubted, but whether it is due to a filtrable virus, to Pfeiffer's bacillus, or to a mixed infection still remains unknown.

G. H. Cattermole: **Medical Complications.** The most serious complications are pneumonia, acute bronchopneumonia in children, with at first rough puerile breathing and later moisture and typical bronchopneumonia; the temperature drops by crisis or lysis, fatal cases often running a temperature of 105.8°.

In adults, more cases resemble lobar pneumonia than in the epidemic of last year; there are less cyanosis and less tendency to hemorrhage. The streptococcus hemolyticus appears to be a common mixed infection with the influenza bacillus, as in last year's epidemic.

Otitis media is a complication in children. Sinus trouble, heart complication and digestive disturbances, vomiting and diarrhea, have been frequently seen.

Pleurisy and empyema are common complications, but are only now appearing as sequels of this epidemic.

Hemorrhage is not common except from the nose; occasionally blood is found in the stools.

Other complications met occasionally are septicemia, neuritis, meningitis, peritonitis, jaundice, depression of spirits and dementia.

The typical symptoms of influenza are: Prostration; oppression in the chest; cough; high temperature; profuse expectoration; rapid respiration, and râles.

O. M. Gilbert: **Postinfluenzal Conditions** (especially the tuberculous). The deaths from tuberculosis last year were one hundred fifty thousand, being about twenty-one thousand more than for the past several years, and the epidemic of influenza is largely responsible for the increase, though war conditions had something to do with it. Many tuberculous cases now active date their trouble from an attack of "flu" of last year, impressing us with the extreme importance of allowing time for convalescence after all influenza cases. Tuberculous cases contracting influenza are impossible to diagnose early, because early symptoms of "flu" are practically identical with a flare-up of an existing tuberculous process. Dr. Gilbert has found five cases developing a spontaneous pneumothorax after an evident influenza infection. Two of these cases have recovered and have apparently regained their previous standing and even seem to have an improved general condition after recovery from influenza; the other three died, one of them very suddenly.

Tuberculous cases having a preexisting pneumothorax, on contracting "flu" have shown no resistance, but the infection in most instances progresses rapidly to a fatal end.

As to treatment, Dr. Gilbert finds most important the early use of digitalis, as soon as the diagnosis is established, before there is any evidence of weakening of the heart, to support and prevent heart failure when toxemia becomes serious; complete elimination by bowel, and counter-irritation; but most important of all, early and complete rest in bed, continued until convalescence is well established.

C. J. LaRue: **Complications of Eye, Ear, Nose and Throat.** The most common sign of influenza presented to the specialist is passive congestion of the nasopharynx, uniform and intense, the veins engorged and giving a purplish appearance to the mucosa.

An acute catarrhal inflammatory process of the middle ear is the most common complication, many of these becoming purulent. Myringotomy is indicated early. In adults, purulent otitis without pain has appeared (nontuberculous).

Mastoiditis follows otitis in the usual percentages of cases in this epidemic.

Pansinusitis of a catarrhal nature is common; the maxillary sinus is apt to become purulent.

Acute catarrhal laryngitis, tracheitis and tonsillitis followed by quinsy are frequently seen.

Severe epistaxis may follow influenza, one case having been reported with fatal hemorrhage of the tonsil not following operation; in another case of hemorrhage reported, a quick enucleation and pressure to the fossa caused the hemorrhage to cease. Dr. LaRue has seen one case of retinal hemorrhage following influenza.

Amblyopia has been reported in a good many cases, and weakness of one or more of the ex-



trinsic muscles of the eye has been observed. It seems that there have been a good many cases in which people complained of eye strain, were refracted and corrected, and after a short while found that they were all right without glasses, having taken a rather heavy correction. It would seem that there are more of such cases as this occurring in people who have had influenza recently than in those who have not. The general weakness as experienced throughout the body is likewise manifest in the ciliary muscle as well as in the extrinsic muscles of the eye, causing eye strain which becomes corrected later as the general condition is corrected and improved.

Considerable evidence is now being gathered pointing to the fact that lethargic encephalitis may be a simple complication of influenza. The etiology of this disease is not yet by any means positive. It is manifested by weakness of the intrinsic muscles of the eye causing diplopia, and vertigo in a great many cases. It would be well to keep a lookout for these cases and be prepared to handle them, for they are being reported just now all over the United States.

Clay E. Giffin: **The Surgical Aspects.** The surgical complications of influenza during the past two years have been very diverse in type, but the percentage of influenza cases eventually coming under the surgeon's care has been very small. The one frequent complication has been empyema following or accompanying pneumonia. Surgical interest has largely centered upon this catastrophe and its management. In the treatment of pyothorax we have noted a decided tendency to avoid thoracotomy altogether, or to make it a late operation rather than a primary procedure. Although great diversity of opinion still exists, a review of recent literature would seem to suggest that the following course might lower the general mortality and morbidity associated with empyema: (1) Early and frequent diagnostic punctures. (2) Aspiration of serous fluid only when it becomes an embarrassment to respiration. (3) Catheter drainage with negative pressure for all purulent cases. (4) Thoracotomy for late cases, for pocketed cases, and for cases in which the exudate is too thick to flow through a large catheter. (5) Thorough use of local anesthesia for all procedures.

We have found no need for complex apparatus in instituting the negative pressure method. A trocar was procured which admitted a 20-F catheter. The trocar with its canula was forced between the ribs through a carefully anesthetized area. Following the withdrawal of the trocar a catheter was inserted as quickly as possible. The canula was carefully pulled out over the catheter and the catheter anchored in place by means of sterile string and adhesive. We had no inconvenience from leakage. In our earlier cases negative pressure was maintained by means of the ordinary laboratory suction pump. Later, because of greater convenience, we utilized the common aspirating syringe and bottle and found that it required less attention on the part of attendants.

W. W. Reed: **The Obstetrical Aspects.** Last year the epidemic of influenza gave a very high mortality in pregnant patients with a great frequency of abortions. This year the pregnant cases are escaping much more frequently, are having the influenza in a much lighter form, and are freer from pulmonary complications. There are, therefore, not so many abortions resulting.

There is apparently no immunity to influenza due to pregnancy, as there is to most other of the acute infectious diseases, with the exception perhaps of scarlet fever and cholera. The mor-

tality and tendency to abortion exists to a greater or less extent in all acute infectious diseases. Typhoid, measles, acute lobar pneumonia complicating pregnancy are frequently fatal and often result in abortion.

In the epidemic of influenza of last year in pregnant cases with pulmonary complications sixty-nine percent died and fifty-eight percent aborted, a percentage far in excess of anything previously known in any of the infectious diseases. Abortion is no doubt caused in this high percentage by reason of the cough, the extreme toxemia, and the hemorrhagic tendency of all the mucous membranes. Small hemorrhages at the placental site cause premature detachment of the placenta and premature labor or abortion as the result.

When labor occurs in these cases it is long, tedious and exhausting, causes greater flooding of the blood stream with toxins and the disease runs a much more rapidly fatal course.

None of the rules applying to the other toxemias of pregnancy hold true in the toxemia of influenza with pulmonary complications. Emptying the uterus is of no avail in checking its progress and should not be done. It is better to treat the influenza and let the pregnancy alone.

M. E. Miles: **Treatment.** Rest does more good and prevents complications more than any other treatment. Pneumonias are often developed from getting up too soon. Members of the family getting up to take care of others often contract pneumonia and die. Put the patient to bed with plenty of air space and free ventilation.

Salicylates administered intravenously are not used much, and offer no advantage over oral administration.

Laxatives seem to lessen the tendency to pneumonia and to the effusion of blood and serum into the bronchial tubes. Thromboplastin for the same purpose did not seem to help in some cases.

Hypertonic glucose given intravenously in varying doses has aided in combating toxicity and supplying nutritive material to the cells.

Cyanosis has been relieved in some cases by venous section.

Digitalis is important to support the heart.

Convalescent serum gives some promise of good results.

Vaccines have proven of more value for pneumonias than for simple "flu" infection where they are of not more than fifteen percent preventive value, according to Rosenow.

C. W. Poley: **The Epidemic in Boulder.** On January 26th the first influenza cases were reported in Boulder. All physicians were notified to immediately report cases. Isolation and placarding were put into effect. Notices were inserted in the newspapers as to personal hygiene and much publicity was given to the fact that influenza was present in the community. In spite of this the cases increased rapidly. About the seventh day, which was the day of the highest increase, about eighty new cases were reported. The ninth day, approximately seventy cases were reported. A strict quarantine, closing of all churches, schools, moving picture shows, social gatherings, soda fountains and pool halls was put into effect on the ninth day. By the eleventh day the cases reported had dropped to twenty-five, on the thirteenth day to about thirty-five, on the fourteenth day about fifteen, the seventeenth day twenty-five, the eighteenth day five. The eighteenth day was February 11th. From this date until February 21st cases have run from nothing up to four or five reported daily.

The schools were opened on February 16th un-



der very strict regulations. All persons with colds have been sent home immediately from schools, churches and all public gatherings. The quarantine has been lifted gradually, allowing two or three days between the removal of various restrictions. The accompanying graphic chart very well illustrates the first wave of influenza here in Boulder. Whether or not there will be another epidemic is, of course, impossible to say.

Total number cases reported now about seven hundred to date.

#### COLORADO OPHTHALMOLOGICAL.

The regular meeting of the **Colorado Ophthalmological Society** was held in Denver on January 17, 1920, Dr. W. C. Bane, presiding.

G. L. Strader, Cheyenne, Wyo., presented a boy aged fourteen years, who in August, 1918, had been struck in the right eye with a stone thrown from a sling, the result being an incised wound 5/16-inch long at the upper outer corneal margin, with a prolapse of the iris. The eye had healed satisfactorily, but the patient had recently returned with irritative symptoms due to the presence in the anterior chamber of an epithelial cyst secondary to the penetrating injury. Discussed by G. F. Libby, W. H. Crisp, Edward Jackson and C. E. Walker.

W. A. Sedwick, Denver, presented a woman aged fifty-nine years who, after a number of attacks of iritis, had developed symptoms suggestive of glaucoma. Discussed by J. A. Patterson, G. F. Libby, E. M. Marbourg, E. R. Neep, F. E. Wallace, G. L. Strader and Edward Jackson.

J. M. Shields, for Melville Black, Denver, presented a man aged fifty-three years whose right eye had been injured about thirty-three years previously while he was pounding on a hot metal plate, and whose left eye had been penetrated by a sliver of steel from a steel plate three years previously. In the right eye there was probably a membranous cataract behind the extremely minute pupil, and the left eye was in an irritable condition. The question whether to attempt operation on the right or left eye for improvement of vision was discussed by Edward Jackson, C. E. Walker, W. H. Crisp and F. R. Spencer.

J. M. Shields presented for Melville Black, Denver, a woman of twenty years whose vision was considerably reduced as the result of repeated attacks of iritis in each eye, together with an opacity at the back of each lens. The advisability of an iridectomy being done on each eye was discussed by F. R. Spencer, C. E. Walker, Edward Jackson, J. A. Patterson, W. H. Crisp and J. A. McCaw.

D. A. Strickler, Denver, presented a man of twenty-seven years who had been struck in the right eye with an iron staple, the result being a long cut in the cornea, a slight prolapse of the iris, a cut in the iris, and a puncture in the lens capsule, through which swollen lens matter welled into the anterior chamber. The question of the advisability of removing the partially cataractous lens was discussed by E. R. Neep, J. A. Patterson, H. R. Stilwell and C. E. Walker.

D. A. Strickler, Denver, presented a woman of fifty-two years whom he had seen in consultation with Dr. Swerdfeger on account of vascular disturbances in the fundus of the left eye, probably including thrombosis of the retinal artery, and resulting in complete blindness of that eye. The urinary findings were those corresponding to chronic parenchymatous nephritis, and the systolic blood pressure was 222 mm., the diastolic 150 mm. Discussed by F. R. Spencer, Edward Jackson and J. A. Patterson.

C. O. Eigler, Denver, presented a man aged forty-two years whose left eye had become suddenly blind as the result of an obstruction of the central retinal artery. The patient had complained for over two years of momentary attacks of blindness. Discussed by Edward Jackson and C. E. Walker.

C. E. Walker, Denver, presented a man aged thirty-nine years who, after being for several months in the care of another surgeon on account of an obstinate iritis in consequence of which the pupil had become firmly adherent to the capsule of the lens, had shown prompt improvement and rapid recovery after removal of several teeth on account of root abscesses.

W. H. Crisp, Denver, presented a woman aged thirty-three years who had developed several complications following an iridectomy for glaucoma, but who was now apparently permanently cured, although having to wear a very strong plus lens since removal of a cataract which had developed suddenly six weeks after the iridectomy. The other eye had become entirely blind prior to the first operation, but had been retained. Discussed by C. E. Walker.

W. C. Bane, Denver, presented a man aged twenty years on account of a posterior polar cataract in each eye.

W. C. Bane, Denver, presented a man aged sixty-two years who, apparently as the result of a fall downstairs, had a tremulous left iris and lens, the lens moving slightly with every movement of the eye. Discussed by C. E. Walker.

G. L. Strader, Cheyenne, Wyo., reported a case of gonorrheal ophthalmia which had yielded with exceptional promptness to treatment with an eight percent solution of silver nitrate applied to the inside of the lids. Although the condition was at its height when the man came into the office in the afternoon of January 14th, the nurse reported from the hospital that there was no pus from two o'clock in the morning of January 15th, and the patient was sent home in the morning of January 17th with only a slight redness of the conjunctiva.

WM. H. CRISP, Secretary.

#### FREMONT COUNTY.

The third course of the 1920 series of the Medical Extension Lectures for the **Fremont County Medical Society** was given at Cañon City on the evening of February 2nd, there being only one lecturer, Dr. J. B. Hartwell, in attendance.

There were present: Drs. Graves, Graves, Wilkinson, Holmes, Hutton, Little, Webb, Hinshaw and Orendorff, and also Drs. Ashley and Roberts as guests.

The lecture was very interesting and instructive and showed a deep grasp of the subject. Some of the points emphasized were: the necessity of catheterization of the ureters, the significance of continuous pus in the urine as pointing to a tuberculous infection of the kidneys, the gastrointestinal symptoms, cystoscopic examination, guinea-pig inoculations, the advantages of surgical treatment over medical treatment, and the fact that primary tuberculosis of the kidneys is very rare. Dr. Hartwell also recommended the use of tuberculin in inoperable cases.

As the other men from a distance failed to appear, Dr. W. T. Little of Cañon City volunteered to give his lecture on the physical diagnosis of the diseases of the chest, which he characterized as a résumé of the well-known signs. This lecture was illustrated by the use of a living model, charts and a blackboard. The lecture included the anatomical and physical factors involved. The lec-



turer went into the subject at length and in detail and gave the society the benefit of his great experience and study in a most entertaining manner.

OTIS ORENDORFF, Secretary.

### LAKE COUNTY.

The regular semi-monthly meeting of the **Lake County Medical Society** was held at the office of Dr. J. A. Jeannotte, January 15, 1920. Six members of the society were present. Dr. E. B. Lynch was elected to membership.

The program for the evening was a discussion of wood alcohol and so-called bootleg poisoning. Dr. Franklin J. McDonald reported a very interesting case of bootleg poisoning from which the patient recovered.

The society voted to meet the first Thursday of every month instead of semi-monthly, as many of the doctors could not be present twice a month.

The following officers were elected for 1920:

F. J. McDonald, president, Leadville.

A. J. McDonald, vice president, Leadville.

E. B. Lynch, secretary and treasurer, Leadville.

J. A. Jeannotte, delegate to the state society meeting, Leadville.

R. J. McDonald, alternate, Leadville.

E. B. LYNCH, Secretary.

## Book Reviews

**Cerebrospinal Fluid in Health and Disease.** By Abraham Levinson, B.S., M.D.; Associate in Pediatrics, Northwestern University Medical School; Associate Pediatrician, Sarah Morris Children's Hospital of the Michael Reese Hospital, Chicago; Attending Pediatrician, Mount Sinai Hospital, Chicago; Attending Physician, Children's Department, Chicago-Winfield Tuberculosis Sanitarium. Two hundred thirty-one pages with fifty-six illustrations, including five color plates. Published by the C. V. Mosby Company, St. Louis, 1919. Price, silk cloth, \$3.00. The author offers this little book as "a humble contribution", and says that he is fully aware of its shortcomings and omissions.

Tut, tut! And if there are any shortcomings and omissions, the reader will forgive everything when he finds a book on the cerebrospinal fluid printed in the English language and sees that he no longer has to bother about die Zerebrospinal-flüssigkeit or le liquide cephalo-rachidien and thus congeal his own brain-juice in search of a little wisdom.

If the book has any shortcomings, it is the fact that it is a little too academic in places for the average reader, for the author discusses such properties of the spinal fluid as its electrical conductivity, refractometric index and proteolytic power. But in addition to all this there is a fund of information that will prove invaluable to the laboratory technician in his routine work, and to the clinician in his differential diagnosis.

Thrice welcome, little monograph! C. S. B.

**The Medical Clinics of North America.** Volume 3, No. 2. (The New York Number, September, 1919.) Octavo of 270 pages. 35 illustrations. Philadelphia and London: W. B. Saunders Company, 1919. Published Bi-Monthly. Price per year: Paper, \$10.00; cloth, \$14.00.

The opening clinic of the New York number is presented by Dr. W. T. Longcope. Five cases of purpura hemorrhagica with cerebral and spinal manifestations are offered for consideration. The subject is covered in a comprehensive manner.

Dr. Leo Burger follows with a most valuable and practical clinic on Cystitis, dwelling mainly on the management and therapy. In concluding he states that the medical man, in determining his attitude in the treatment of this disease, may not think of cystitis in the same terms as of local infection, but that he may be aware that cystitis is often but a concomitant and complicating lesion of other diseases. He must invoke a multitude of different diagnostic and therapeutic agents to bring about a satisfactory termination of the disease.

"Common Disorders of Childhood" is the subject selected by Dr. G. R. Pisek. Constipation, coryza and enuresis are briefly discussed by him.

Dr. Herman O. Mosenthal follows with a brilliant contribution on the "Symptoms and Treatment of Retention of Waste Products in Nephritis". He handles the subject in a masterly manner.

The clinic by Dr. Arthur F. Chace on the value of chemical blood examinations with presentation of illustrative cases of acidosis, uremia, interstitial nephritis, essential hypertonia and parenchymatous nephritis deserves commendation.

Radium therapy, with cases illustrating the value of radium treatment, is discussed by Dr. George Stuart Willis.

This is followed by Drs. M. A. Rothchild and A. O. Wilensky's clinic on cholelithiasis, which deals mainly with the general theory of cholesterol metabolism as related to gallstones. This contribution is most enlightening and displays some of the newer theories on this important subject.

Dr. Morris H. Kahn presents an up-to-date clinic on the functional diagnosis of the heart, and Dr. Albert R. Lamb a clinic on the "Flint Murmur".

"Vagotonia and Sympatheticotonia" is fully discussed by Dr. A. S. Blumgarten. This is followed by the clinic of Dr. Heinrich F. Wolf on the physical therapy of locomotor ataxia.

A most praiseworthy and valuable contribution by Dr. I. W. Held on the "Splenomegalies" closes this excellent number. J. L. M.

**The Surgical Clinics of Chicago.** Volume III, No. 6 (December, 1919). Octavo of 215 pages, 63 illustrations and complete index to Volume III. Philadelphia and London: W. B. Saunders Company, 1919. Published Bi-Monthly. Price per year: Paper, \$10.00; cloth, \$14.00.

The Surgical Clinics of Chicago for December, 1919, presents among twenty-seven cases a wide variety of conditions. Many of the cases illustrate the routine work of any large hospital, with the surgical treatment carefully outlined, while a few are of interest because of their unusual occurrence.

A new surgical treatment for chronic lung abscess with fistula is tried by Dr. A. D. Bevan. He also has a case showing the rare condition of fibroma of the intestine.

Dr. A. J. Ochsner demonstrates transgastric cauterization of an ulcer on the posterior wall of the stomach.

Elephantiasis nostras is the subject of an interesting discourse by Dr. Kellogg Speed. He discusses the condition in detail and has a typical case for illustration.

A successful result in subacute pancreatitis and their method of drainage are presented by Drs. Goodkind and Eisendrath. The demonstration of the case is followed by an outline of Deaver's able article on pancreatitis.

In addition the clinics include a rather extreme example of thyroid enlargement, the usual quota



of gastric and gallbladder cases, and several other varied conditions presenting no points of particular interest.

G. B. P., JR.

### Pasteurization.

The greatest feature of the process of pasteurization properly performed is that it causes an additional degree of safety in milk even when it has been produced and handled under the most effective system of inspection.

The term "pasteurization" as applied to milk should mean a process of heating to 145° F., and holding at that temperature for thirty minutes. An occasional variation of two degrees above or below this temperature may be allowed under commercial conditions. This process should be followed by cooling the product to 50° F. or lower.

Proper pasteurization is of value both from a sanitary and a commercial standpoint. The value of pasteurization is of greatest importance from a sanitary standpoint when market milk is under consideration, because the process, when properly performed, affords protection from pathogenic organisms. In recent years there have been instances where proper pasteurization has prevented further spreading of epidemics of septic sore throat. From a commercial standpoint pasteurization is of value insofar as it increases the keeping quality of milk and prevents financial losses by souring. As practiced at present, commercial pasteurization destroys about ninety-nine percent of the bacteria in milk, and while it does not prevent souring, it does delay the process.

Pasteurization of milk is looked upon with favor by medical men, sanitarians, dairymen and consumers, but the art has not developed without opposition, most of the objections having been based on theory or on experiments in which milk was pasteurized at high temperatures, but in view of the lower temperatures now in use and of more modern theories, these objections are now of no great importance.

One of the greatest objections has been that pasteurization destroyed the lactic acid bacteria but left putrefying organisms, which, when relieved from the restraining influence of the acid-forming bacteria, would develop, forming toxins and putrefactive products. Extensive investigations on this subject in the research laboratories of the Dairy Division of the U. S. Department of Agriculture have definitely proved that pasteurization at 145° F. for thirty minutes does not destroy all the acid-forming bacteria, and that these organisms cause the souring of pasteurized milk in a manner very similar to raw milk.

Another objection raised is that bacteria grow faster in pasteurized than in raw milk. This is not the case when comparison is made between milk having about the same bacterial content. From a chemical standpoint, serious objections have been raised against pasteurized milk, on the ground that heating decreased its nutritive power. It has been found, however, that pasteurization at 145° F. for thirty minutes produces no appreciable change in the albumin and soluble phosphate content. Furthermore, feeding experiments on babies have proved that milk pasteurized at the temperature mentioned is as digestible and nutritive as raw milk. Just what relation pasteurized milk bears to scurvy and rickets is not clear, but it is well known that when a tendency toward these diseases develops in infants the feeding of orange juice is a simple and effective remedy.

There is some basis for the objection that pasteurization causes lax methods of production on the farm, for the reason that producers would

know that the milk was to be pasteurized and would be careless in its production. However, in any city where there is an inspection of the raw milk supply the same inspection can and should be continued, even though the milk is to be pasteurized.

High-temperature pasteurization of the early days must not be confused with low-temperature pasteurization of the present day. The fallacy of the objections to pasteurization has been shown through scientific research in the past few years, and as a result the value of the process has been firmly established.—United States Department of Agriculture, Bureau of Animal Industry, Dairy Division; quoted in the Monthly Bulletin of the New York State Department of Health.

### Occult Tuberculosis.

A large group of patients suffer symptoms from a tuberculous infection which is non-progressive. The symptoms are due to a subtle intoxication which undermines the functional powers and co-ordination of all vital tissues. This condition Sewall of Denver terms "occult tuberculosis." The patients as a rule are not definitely sick. There is a general functional insufficiency with lack of staying power that is brought out by slight physical strain. Neuralgic pains, headache, dizziness, undue fatigue and nervousness are common symptoms. In women menstruation is apt to be scanty or is frequently missed. The temperature is usually not elevated, but may rise slightly after exercise. The lungs are rarely suspected, but they give auscultatory and x-ray evidences of slight sclerosis, involving especially the hilum lymph nodes and the upper bronchial radiations. The symptoms may often be traced to circulatory or harmonic insufficiency. Many of these patients have probably been classified under the title, "effort syndrome," or "neurocirculatory asthenia." The most valuable objective sign of occult tuberculosis is the reaction of the blood pressure to slight strain, such as changing from the supine to the erect position. Most of these cases have vascular hypotension, but the most significant feature is an abnormal lowering of pulse pressure and its tendency to progressive subsidence when the erect posture is assumed. This may be due to inordinate fall of systolic or to rise of diastolic pressure in the upright as compared with the recumbent position. This pressure change is not specific of occult tuberculosis, but after exclusion of "focal infection" it should suggest this condition and lead to the application of diagnostic methods, especially x-ray photography.—American Review of Tuberculosis, 1920, Vol. III, No. 11.

### X-Ray Diagnosis of Early Tuberculous Colitis.

According to Brown and Sampson, of the Trudeau Sanatorium, in the early or latent stages of tuberculous colitis the clinical picture contributes little to diagnosis. However, certain x-ray shadows taken 6, 18, and 24 hours after a barium meal show definitely the presence of colonic ulceration, though their absence does not exclude it. The x-ray picture also shows hypermotility and spasm, or filling defects, and such a picture in a patient with pulmonary tuberculosis should lead to a definite diagnosis of colonic tuberculosis. The condition is far more frequent than has been hitherto taught, and must be excluded in all advanced cases as well as all early cases with abdominal symptoms, before submitting them to radical treatment. No examination of a patient with pulmonary tuberculosis can be considered complete without an x-ray study of the intestines.—American Review of Tuberculosis, 1920, Vol. III, No. 11.



# Colorado Medicine

OWNED AND PUBLISHED BY COLORADO STATE MEDICAL SOCIETY

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## Editorial Comment

### CONCERTED EFFORT AND THE PSYCHOPATHIC HOSPITAL.

The general interest manifested by the members of the society as evidenced by the promptness in the return of the signed petitions has been very gratifying to the committee and at the same time predicts a success for the measure.

It is too early now to prophesy an overwhelming return of signatures, but the evidence is such as would indicate what might be accomplished through concerted action by the organized profession in this state.

This measure has for its object the relief of suffering and distress, and as such it characterizes the aims of the medical profession in matters of public health and welfare. As is well known, these measures are often defeated, notwithstanding their worthiness and need, because of the lack of cooperative action. At the present time there is every indication that this attempt will be successful.

It is therefore highly important that every physician in the state regard it as his duty to lend his assistance in sending this petition "over the top". Not only will the solicitation of signatures be met with a prompt and eager response, but will at the same time familiarize voters in every district with the purpose of the measure and thus assure the passage of the initiated bill at the election polls. It has been suggested by those who have returned completely filled petitions that no difficulty was experienced, and when explained there was an eagerness to sign; that they might be carried about on the daily routine calls at both hospital and private homes.

Additional petition forms will be supplied upon request to the chairman of the committee, Dr. D. A. Strickler, Empire Building, Denver, Colo. Several requests have thus far been made for second petitions.

The time for action is now, and while there seems to be no doubt that the requisite number of signatures is assured, it seems advisable that effort and energy should be maintained to supply an emphatic surplus of names, as an indication of the public sentiment, and stimulated by a statement of the conditions by competent professional counsel.  
D. A. S.

### THE NURSING PROBLEM.

For the past year or so the voices of physicians, or of some of them, have been raised against certain features of the nursing system, and particularly against the "exorbitant demands" of the registered nurse for remuneration. During the influenza epidemics there have apparently been occasional instances of actual gouging by nurses, although such practices should not be charged to the nursing profession as a whole. It is further argued that nurses did wrong to raise their scale of fees during the war, when the generally increased cost of living placed an undue burden upon the sick and their families, and when physicians were not only refraining from a like increase, but were called upon to do even more than their customary share of "charity work".

It may be true that many physicians have made no increase in their scale of fees during the relentless climbing of prices of practically all the necessities and luxuries of life. But it would perhaps hardly be safe to inquire whether this financial conservatism was altruistic in origin, or merely de-

pended upon an economic defect of our loose medical organization.

In spite of all the clamor concerning high prices, almost all classes of society have more money to spare and are dissipating it more recklessly than at any other time in the world's history. This being the case, why should those whose living is derived from the practice of the healing art, whether as physicians or nurses, stand alone in accepting no more for their services than they did when the dollar would purchase twice as much as today?

The physician who has not raised his fees beyond what they were four or five years ago is as a matter of fact accepting less for his services than he did at that time. Either he was charging too much then or he is charging too little now. In this region the standard rate of remuneration of registered nurses a few years ago was twenty-five dollars a week; the corresponding rate at the present time is thirty-five dollars a week. Most things cost somewhere near twice as much today as before the war. The conclusion to be drawn as to the moderate increase regularly demanded by the registered nurse hardly needs to be stated.

There are still to be found nurses who, in case of need or emergency, are ready to go beyond the letter of their contract in hours of work and service rendered. But too much emphasis has often been placed upon the supposed professional status of the nurse. As a matter of fact, the registered nurse is a skilled worker hired by the week, for a more or less definite number of hours per day, who accepts no responsibility beyond that of doing as she is told, according to the rules of her training. It would be idle to expect the nurse who is working for a living to undertake "charity work" in the sense in which the expression is applied to some of the activities of the doctor. For one thing, she is denied the opportunity to spend one-half hour upon a patient who is unable to offer remuneration, and several succeeding half hours upon patients whose ability and willingness to pay may be expected to counterbalance the poverty of the first. Gratuitous or low-priced nursing must usually be

undertaken through charitable organizations, either public or private.

On the other hand, there are perfectly valid objections to the present-day system of nursing. In the results which it yields to the public it is often excessively expensive and at the same time unsatisfactory as to the services rendered. In many households the registered nurse is a poor substitute for the old-fashioned "practical nurse", who on occasion would clean house, feed and wash the children, and generally play the part of mother to the family.

The registered nurse obtains her diploma after thirty-six months of continuous preparation, during which she is practically unpaid. In other words, the actual time devoted to technical training of the nurse is about equivalent to the college attendance of the four-year medical course. The nurse is not so far usually required to present a college diploma, or even to have had two years of college education before entering upon her hospital course; but there are signs that such requirements may soon be established. So costly a preparation is not excessively compensated by present-day nursing fees. As a matter of fact, the great elevation in preliminary requirements for the nursing career has been partly aimed at reducing the number of probationers; and such a limitation has always had the further consequence of improvement in earning capacity of the worker.

During the great war, when, without excessive dislocation of the civilian organization, it became necessary for the United States Government to find means of placing enormous numbers of nurses in France and in the military camps at home, it became evident that the ordinary procedure for training the registered nurse would be absolutely incapable of satisfying the problem. Steps were already being taken, and if the war had lasted much longer the process would have continued on a much greater scale, for the rapid training of special nurses who would not have been given the diploma under which the registered nurse is licensed in the different states of the Union.

What was urgently necessary in war is only less urgently needed in peace. The



present method of training the pupil nurse is absurdly unscientific. All the theoretical knowledge that she acquires during her thirty-six months of training could probably be taught much better during three months of study. At present her classes in anatomy, physiology, therapeutics and other branches are merely an obnoxious detail in the day's routine of hard work; and are often by necessity given at hours when she is tired out and quite incapable of alert mental effort. On the other hand, of the thirty-six months spent in the hospital, probably at least thirty-three are wasted in common drudgery, which adds little or nothing to her subsequent efficiency. In this respect the nurse suffers from the same defect of the hospital system as the medical intern. Both are victims, but especially the pupil nurse is a victim, of the willingness of hospital authorities to make use of cheap labor. It is likely indeed that an intelligent woman could acquire in six months of real scientific education every essential at present provided by the usual three-year course.

If in every large center of population throughout the United States, an efficient and reliable six-month nursing course could be offered to as many as wished to take it, incalculable advantages to the nation might result. Such advantages would not merely include the better nursing of the sick, but a great quickening and broadening of knowledge of the principles of health among the common people. Such a six-month course need not require residence on the part of the student. Considerable latitude might be allowed for spreading the course over longer periods in the case of those who wished to obtain such an education while still carrying on their home duties. There are many thousands of women who would be glad to take the course merely on account of the increase in their own efficiency as members of families, or because of the opportunity afforded for public service in times of emergency. For such women, young and old, the conditions of the present nurse's training are obviously prohibitive. The advantages obtainable in time of war from the training of large bodies of women in a short nonresident course are manifest.

For such an abbreviated nursing course to make itself felt in the national life, the opposition of the hospitals and of the organizations of registered nurses will have to be overcome. It is probable that for a long time this opposition will prove absolutely insuperable. It may be asked, moreover, what will happen to the registered nurse in competition with such a large body of women, trained at less expense and probably able and willing to serve for lower pay? But since every new system must develop gradually, it is extremely improbable that the status of the registered nurse would be in any way harmed. Her employment would be increasingly specialized for institutional and teaching work and for the class of service which she at present furnishes in the homes of the wealthy.

W. H. C.

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### DOCTORS' FEES AND THE HIGH COST OF LIVING.

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The action of the New York and Chicago Medical Societies in passing resolutions greatly advancing physicians' and surgeons' fees to meet the higher cost of living necessities will attract general attention.

The recent address of a distinguished physician and surgeon of Cincinnati before the Los Angeles County Medical Society on the "Unionizing of the Profession" is also an indication of the trend of professional opinion concerning many vexatious questions and unsolved problems immediately incident to the world war.

Of all professions, vocations and trades, the medical, from its peculiar duties, its traditions and its honored history, has been singled out by the public opinion of all time, as well as by its own sense of humane obligation to the sick and to the well-being of society, as the one body whose life and purpose are consecrated to the prevention of disease and the alleviation of human suffering, without regard to cost or time in exchange. This has been the animus and the spirit which heretofore has given it the loving trust of the sick and the exceptional confidence of the public in its high purpose and its humane endeavors. We should not willingly destroy this temple of fame.

No one questions the propriety and necessity of adequate pay to doctors, of good fees proportioned in a measure to their skill and to the importance and value of the work done, and always in keeping with the ability of the sick to pay.

Doctors, like others of modest income, are hard pressed by profiteering and the high cost of the absolute necessities of life. Most doctors are men of moderate means and income, yet their services are cheerfully and freely rendered, regardless of cost, and in this respect different from all other business. To commercialize it is to degrade it. To traffic in it as a commodity or merchandise, is to lower its tone, undermine its chief virtues and ultimately destroy its distinctive place and character as the most humane and scientific of all the professions. To raise its fees moderately is justified by present conditions, but if we endeavor to keep pace in this respect with merchants who traffic in the actual needs and suffering of the day, we shall just as certainly fall under the ban and criticism of public distrust.

The consumers—the great mass of the people—are being pulverized between the upper and nether millstones, capital and labor. Legislation in cities, states and nations is class legislation, which is seldom reflected in special favors to the professions.

W. W. G.

### THE SPURIOUS SPECIALIST.

The specialist in medicine might properly be defined as “one who limits his practice to a given line of work in medicine and surgery, in which he has superior skill and experience”. Too often, however, in America, he is properly described by the first clause only of that definition, and whatever prestige he may gain is in many instances due to his knack of making friends with other doctors, to reciprocal reference of patients, to being a “good fellow” and a good “rustler”, and not to competency. It is no reflection upon the vast number of genuinely trained specialists in the United States that their fields contain so many incompetents, for they have no means of restricting those fields under our present laws; and our

purpose is not to arraign the specialties as such, but to point out a means for ridding them of a detrimental feature which our state laws do not exclude. We have all encountered in our practices cases of bad surgery, improper treatment, appalling delay due to “expectant” treatment of an eye by a “specialist” who should have known better, or so-called butchered tonsils (which term, however, a good butcher would consider a slur upon his trade); and it is because those are allowed by law to undertake such work who are not naturally competent and not sufficiently trained that we encounter these conditions. But let the lay reader bear in mind that malpractice (not using the word in its legal sense) due to such causes should be laid at his own door, and not at the profession’s, for no one deprecates these occurrences more than the great body of high-minded men mainly constituting the rank and file in medicine. When we try to get restricting laws we are met with the opposition of the public on the ground that we are thought to be exercising the power of a trust to the exclusion of competition. The frustration of our efforts is thus accomplished by the very element of society which charges us with the misdeeds of the unfit whom they allow to continue within our ranks.

As long as a graduate medical student can, even without any hospital or clinical postgraduate experience, set himself up as a specialist in eye, ear, nose and throat, general surgery or what not; or, perhaps with more foresight of his future and insight into the psychology of his prospective patients, go away for a six or twelve weeks’ course in some “postgraduate school” and return home to “specialize” on the strength of having taken postgraduate work; as long as there is no law requiring special training for a suitable length of time, so long will it remain difficult to rid the profession of the spurious specialist. Yet, there is one restraining feature which may act in his case which does not, alas, obtain in the case of the “hustling” type of ignorant general practitioner who fools his clientele by aping the dignity of his betters or taking the pose of an efficiency expert, and that feature is that the specialist depends so largely upon



reference of work by other doctors that his brother practitioner becomes a large element in the determination of his success. It consequently lies within the power of the professional body itself to say what shall be the future status of the specialties. How, then, shall they be improved?

Along general lines, it seems that one course of procedure which might operate successfully in time is this:

(1) That a course of training suitable as to length, theory and amount of practice be outlined by cooperation between the national organizations representing each specialty.

(2) That these organizations recognize or establish schools giving such courses.

(3) That the student's work be checked by rigid examination.

(4) That a degree or certificate be given graduates, carrying a distinctive form of initials which following his name would identify him as a graduate of that course, and that the use of such title be not only approved, but encouraged.

(5) That the profession at large be advised fully of the purposes and plans and asked to cooperate in this effort to standardize the specialties; and taught that when a doctor bears such and such a title it means that he has had a definite training which is approved by the leaders in his field.

(6) That the public be fully advised by propaganda of the movement and the meaning of the certificates.

The fault at present with many diplomas is that there are so many postgraduate schools, some good, some bad, that the diplomas may mean much or little, and the practicing physician, having learned that fact, is not governed by diplomas or "degrees" in referring cases. A standard set by a national body should be quite a different matter and ought to gain the respect of the better class of physicians, who predominate. More effective than all else, however, the public, if properly informed, would soon demand that its specialist should be one who had the national qualification, and the out-of-town physician in seeking the name of a specialist, could by looking in his directory determine at a glance that so and so was qualified in the work for which he desired

to refer his patient—not merely that he limited his work, but that he was competent in it; and those who were not so qualified would be quick to seek the stamp of the national body's approval.

In some of the European countries we have heretofore been inclined to admire the scientific advancement and development of good methods in medical and surgical practice, and have been eager to learn from their teachers. It was perhaps because of the years of preparation required in their specialization that those teachers acquired, and deserved, their good reputations. In the Austrian empire, for example, we are informed that three years special study in one of the teaching hospitals was necessary before a doctor could by law set himself up as a specialist.

While we can not have national control of these matters through our government, it does seem that national organizations might develop such standards and provide such facilities for specialization that in time they would be taken as a matter of course by the profession and demanded by the public.

There are several organizations which to a certain extent have a tendency to improvement of specialties. The American College of Surgeons has done much to raise the standard of surgery, and F.A.C.S. is a title which commands respect. Yet that society has not always been strict enough in its membership requirements to make the title necessarily a badge of competency. Perhaps too often members were admitted not because their ability had been proven by positive test, but because, negatively, there was nothing of an unfavorable nature known of the applicant; and recommendations of personal friends may not always have been unprejudiced. Again, standardization may not be the prime object of the College.

Perhaps the organization which most nearly approaches the goal of standardization is the American Board of Ophthalmic Examinations, appointed from the membership of the Ophthalmic Section of the A. M. A., the American Ophthalmological Society and the Academy of Ophthalmology and Otolaryngology. Under its supervision, examinations in ophthalmology are given yearly, and

are of such a character that one who has passed them is unquestionably worthy of practicing in that branch. The certificate of that board has become one of distinction and is already receiving due respect from medical men. Colorado physicians may well be proud of the active part that Dr. Edward Jackson has taken in the organization and conduct of the board. It is to be regretted that this board does not grant some titular initials which can be used so that the recipient will be known at a glance as having met its requirements. In this day of many cults, "degrees" and titles by the score have been invented and flamboyantly displayed, but that is all the more reason why a physician of the regular school should show his colors and make his genuine emblem known and distinct from the false.

What the ophthalmologists have done could be done by surgeons, roentgenologists, pathologists, dermatologists and others, and the several titles could have some common feature that would stamp them all as being under the grant of the national medical profession. Furthermore, a definite procedure for acquiring a specialist's rights would be welcomed by the young physician who would in some degree be relieved of the embarrassment of setting up for himself and making a long fight for recognition by the profession, who could not know of his ability until he had proved it. Having passed the standard examination, he would possess a definite and unmistakable qualification.

Many details would have to be arranged. Perhaps the A. M. A. should head the list of organizations as an administrative body for all. Specialties should be definitely defined, the specialist in toe, scalp, rheumatism and other ludicrous sub-divisions of a real department being eliminated. Centers of instruction should be so distributed that access from any district would be easy and inexpensive; cost should be made low. In the determination of entrance requirements the question would have to be considered whether previous general practice should be made a requisite. Present specialists should be admitted, either by regular examination, or by rigid censorship after honest investigation, and provision made that after a set

future date only examination could admit.

The Board of Ophthalmic Examinations has developed unobtrusively and with dignity. It has paved the way for more rapid organization of similar boards in other departments, and if the whole were cemented by the supervision of our national organization, the A. M. A., the stamp of authority should count for much.

If our laws do not protect the public, can not we ourselves protect the intelligent members of society?

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## *Current Comment*

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### **THE PROGRAM FOR THE ANNUAL MEETING.**

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The Committee on Scientific Work of the State Medical Society is now planning the scientific program for the 1920 meeting. Those who contemplate presenting papers at this meeting are strongly urged to communicate with the chairman or another member of the committee as early as possible.

The subjects of all papers, not necessarily the exact titles, should be sent in not later than May the first. Brief abstracts covering the essential points must be in the hands of the committee on or before June the first for advance publication in *Colorado Medicine*. By a provision of the by-laws, no paper may occupy more than fifteen minutes in its delivery.

A. J. MARKLEY, Chairman.

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### **PSYCHOPATHIC HOSPITAL APPROPRIATION.**

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By April 1st every member of this society should have received his blanks for securing signatures to the petition to initiate an act to appropriate the sum of \$350,000 for the erection and equipment of a state psychopathic hospital. The purposes of such a hospital have been previously clearly set forth in the columns of **Colorado Medicine**.

An act providing that a psychopathic hospital be built is already on the statute books, and naturally carries with it the intent of building. It is therefore only logical that



the funds should be provided and the purpose of the proposed bill of appropriation is to carry out that intent.

It may be well to bear in mind that in asking electors to sign the petition you may remind them that even though they may personally be opposed to the appropriation, they are not committing themselves as favoring it when they sign, but are merely helping to bring it before the people at large for a vote at the fall election, and it will have a chance to stand or fall at that time by popular choice. They are thus only submitting the measure to the fair play which Americanism stands for.

Remember, all petitions should be in Dr. Moleen's hands by June 20. Your petition is numbered and a record of your holding is on file.

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### **A STATE SOCIETY AS A COLLECTION AGENCY.**

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What should be the preferable attitude of a state medical society toward its members is something that will bear contemplation. Its range of activity may vary from the promotion of scientific discussions and reports only, to public health and other sociological work and the care of the various material interests of the doctor himself. Just how much paternalism it should exert is the main point for decision, and there is room for a great divergence of view about that. The Colorado State Medical Society, besides its purely scientific work, takes an active interest in state legislation affecting public health and in medical education. It has not so far undertaken any measures directed solely to the material benefit of its members. At one time the Denver county society had under consideration some plan of blanket liability insurance of its members, but it was never put into effect.

The Kansas Medical Society has introduced an innovation that is going to be worth watching. Its plans as outlined in the February issue of its official journal include a credit and collection bureau which is already in operation; it is described in part as follows:

"At the January meeting in Kansas City

the council authorized the establishment of a credit and collection bureau for the members of the society. Any member of the society may send his overdue accounts to the bureau for collection. A series of notices and letters will be sent to the delinquent debtors. All the stationery used will indicate that the bureau is a department of the state society. This alone will suggest to many such delinquents the wisdom of making a settlement. All of these claims will be followed up persistently until they are paid or it is determined that the claim is worthless. Where debtors have moved and left no address, efforts will be made to trace them. When an overdue account is received, if the debtor does not make immediate settlement, the bureau will ascertain if other physicians also have unpaid accounts against him. When it has been determined that it is impossible to collect an account, the name of the debtor and the number of unpaid accounts against him, together with such information as it is possible to secure, will be sent to the secretary of the county society for the information and protection of its members.

"The name, address or various addresses of each debtor against whom an account has been received will be kept in a card index file, together with all the information obtainable concerning him. This in time will be of great value for credit reference. When desired to do so the bureau will endeavor to supply the credit rating of any of its members' patrons. At first this will necessarily require a little time, but in those instances where a man has recently come into a community it may be well to know his credit rating with the physicians of his former place of residence."

Such a scheme might at least be discussed at the state meeting in September. Doctors need such protection as it implies and many who hesitate to hound their delinquent patients through the usual type of collection agency would find this a respectable and common-sense method of gaining information to which they are entitled. Collection measures are distasteful under any circumstances, but are justified in many cases.

## ENGLAND INVITES AMERICAN MOTORISTS.

To those who believe that extreme business enterprise and push are peculiarly American, the quotation from the Manchester Guardian which is here given will be a source of some surprise and enlightenment. Under the heading, "The American Motorist—A. A.'s Plans to Guide Him," it is stated:

"A great number of American visitors are expected in this country, as in Great Britain generally and the continent, this year. Many of them will be touring in their own cars, and elaborate plans have been prepared by the Automobile Association for their reception. The American motor tourist would, without some special guidance, generally arrive in England with little information about the tours he proposed to visit and in entire ignorance of any regulations to which he would be subjected. What the Automobile Association has done is to take steps to provide them, before leaving America, with the necessary information, which is being published in the press and elsewhere. In addition to this, its agents will meet them on landing—the principal port at which they will arrive being Liverpool—and furnish them with all possible assistance whether they are visiting Great Britain only or the continent as well. An agent of the association will aid them in the unshipment of their cars and instruct them how to obtain driving licenses in England or abroad. The tourist from the States will be furnished with typewritten details of any route he may select, with printed information relating to roads, hotels and places of general interest; and on the continent special guidance will be given to the battle areas."

It is further shown that special procedures have been devised to save the American visitor the annoyance of paying import duty on his cars and that international passes have been arranged for to allow the traveler to proceed immediately upon his way in certain European countries as soon as his papers have been examined by a customs officer of the country he is entering.

## Original Articles

### ARTIFICIAL MENOPAUSE INDUCED BY THE X-RAY.\*

C. E. GIFFIN, M.D., Boulder.

There is little or nothing that is new in this subject and the literature has teemed with its discussion for the past decade or more. The surgeons and the radiotherapists have argued it pro and con. X-ray sterilization and roentgen therapy for fibroids are familiar terms to all practitioners of medicine. I should not feel inclined to rehash the subject at this time did I not feel that the x-ray does not yet receive its merited attention and that perhaps a review of our own cases might furnish sufficient local color to make this survey of a common procedure a matter of some slight interest to you.

Skeptical in the beginning, as are most men with strong surgical attitudes, I have gradually passed through the stage of skepticism and find myself at the present time bordering on the line of enthusiasm concerning some phases of pelvic radiotherapy. I am convinced that among those cases presenting menorrhagia, dysmenorrhea, menopause disturbances, neuroses associated with menstrual irregularities, some cases of uterine fibroid and many cases showing exasperating symptomatology of the menopause, a large number can be isolated which are better managed by cautious radiotherapy than by any other method.

This report is based upon thirty consecutive cases selected for x-ray treatment between the years 1914 and 1919. A few earlier cases attempted before the advent of the Coolidge tube are not here recorded because results were too uncertain to warrant the preservation of careful data. Cases now under treatment and those started during the past twelve months are here not considered because of uncertainty of the final outcome. The thirty cases essentially finished treatment. In addition to these there were four cases who had one to four treatments but not a complete course. Two of these left

\*Read before the Boulder County Medical Society, February 26, 1920.



town and two were operated upon because of urgency of symptoms.

Excessive menstrual flow constituted the chief indication for treatment in thirteen of this series. None of them showed definite physical findings on pelvic examination. Many of them were cases of menorrhagia of the early menopause, some were probably due to fibroids too small for palpation, and some few were associated with neuroses earlier in life. Of these thirteen complete arrest of hemorrhage and complete suppression of menses were attained in each instance.

In five cases the reduction of definite fibroids was the chief indication for treatment. These women presented tumors which would generally be classed as small or medium in size. Other cases showing tumors apparently larger than an orange were excluded as being poorly adapted for x-ray therapy. From the radiotherapist's point of view this is ultra conservative because very large fibroids can, in a large percentage of cases at least, be made to recede or disappear under treatment. There is sufficient evidence to give one a large optimism in the presence of enormous fibroids if for any reason surgery is definitely contraindicated. However, no such case occurred in this series.

Combined indications of menorrhagia and palpable fibroids were, as might be expected, frequently encountered. There were six such cases in this group, making a total of eleven in which fibroids were a factor. Of these eleven symptomatic cure was attained in each instance but three of them still show small growths much reduced from their original size. It seems probable that further shrinkage will occur spontaneously or could be induced by further treatment but these patients have all ceased to flow, suffer no symptoms of distress and consequently hesitate to undergo further inconvenience and expense of treatment.

Recurrence of flow following primary discharge from treatment occurred in four instances. Two of these were given additional exposures—one two treatments, and the second, three. Both have now been free from flow for more than twelve months. The

third renewal of menses occurred in Mrs. G. A., aged twenty-eight, a physician's wife. She has three children alive and well. During the six months prior to examination she had averaged eight days out of each month in bed accompanied by flooding and excessive pain for which morphine had been administered rather frequently. She had undergone curettment and medical regimens without relief. At the time of our examination findings in the pelvis were negative. She had hemoglobin (by Dare) of 60%. Eight treatments were given with intervals of three weeks. Treatment was promptly stopped as soon as one period had been definitely skipped. At the end of eight months following the last treatment menstruation reestablished itself but without menorrhagia or dysmenorrhea. The latter condition had been an unhappy factor in her life since the onset of menses at fifteen. In her case there is obviously no indication for further treatment. The fourth case to show recurrence after apparent sterilization was likewise in a young married woman. She was a neurotic of the deepest dye; married six years and twenty-nine years old. The onset of menstruation was delayed until the eighteenth year and after its onset was always extremely irregular and invariably accompanied by disabling dysmenorrhea. Examination disclosed a typical infantile uterus. Her family physician had rendered the same diagnosis two years previously and had attempted to improve local nutrition by curettage and drug therapy but without the slightest effect. After careful consideration it seemed that x-ray sterilization might offer good hope for recovery. She was given thirteen full treatments, the largest number imposed upon any case in this series. Treatment was discontinued as soon as a period of thirty-five days without flow had elapsed. Her hysterical symptoms disappeared with the flow. She gradually gained in weight and general health. At the end of eleven months her flow reestablished itself but without the dysmenorrhea. The periods are still somewhat irregular in time but the neurotic symptoms have never recurred. At the present time she might be

regarded as a slightly nervous woman—certainly not as a neurotic one.

Another menstrual neurosis furnished us with a rather gratifying result. Mrs. F. D., a patient of Dr. Farrington's, was forty-nine years old at the time of reference. She complained that her menstrual periods were increasing in length, amount of flow and pain, and that their onset during the past year had been accompanied by violent nervous spells making work of any sort impossible for one week out of each month. Relatives and neighbors added more to the story by stating that she was quite insane during the menstrual week even to the point of violence. Examination showed a long thin-necked polypus protruding from the cervix. This was removed surgically and a curettment done for diagnostic purposes. Dr. Whitman reported "chronic endometritis". Her symptoms did not improve, however, so radiotherapy was undertaken. She received five treatments altogether. There was no marked alteration in her symptomatology until the time of complete suppression. Eleven months after treatment she volunteered the information that she was never so well in her life, that she was no longer nervous and that she could work every day of the month.

As to technic: the first dose is administered in halves with a one-week interval; beyond that, the patient is given the full dose at one sitting and that is repeated every three weeks until one period is definitely missed. In the fibroid cases treatment is continued with a four weeks interval until the desired result is obtained. Only two areas are exposed, one anterior just above the pubes and the other posterior over the sacrum. The treatment cone is six inches in diameter and is provided with a three and one-half mm. aluminum filter with a wooden compression surface on the opposite end. A supplementary filter of one and one-half mm. is always added in treatment of this class of cases. The exposure time for the complete dose is sixteen minutes in the anterior position and sixteen minutes in the posterior, with a spark gap of seven and a half inches with five ma. going through the tube. The skin-focus distance is always

nine inches. Three years ago I was using twenty-minute exposures but one case in this series showed a marked reaction with slight blistering over the sacrum. Since that time the dosage has been held at sixteen with the above setting. No other instance of dermatitis occurred in the entire series, not even a definite erythema, although tanning was not infrequently noted.

Age is the essential factor in determining the number of exposures required for menstrual suppression. Anatomical conformations constitute practically the only other factor. When these two are known it is surprising how accurately one can estimate the probable total time under treatment. Ages ranged from twenty-eight to fifty-four in this series, so that it is not surprising to find large variation in the number of exposures required to produce similar results. The fewest number of treatments given was three, in one of the cases close to time for the natural menopause. The greatest number of exposures was thirteen, in one of the younger of our series. The average time under treatment was twenty-one weeks.

The drawbacks and stumbling blocks, annoying signs and symptoms were of very slight moment. As stated above, definite dermatitis occurred in one case. This healed in three weeks sufficiently to allow of further exposure through the same area. It could well be added here that each patient is provided with Dodd's alkaline lotion, a combination of zinc oxide, phenol, glycerine and lime water. This is carefully painted over both areas of exposure twice each day for the week preceding and the week after treatment. Also patients are requested to report the slightest redness noted after treatment and any definite sensation of sunburn over the areas rayed. Perhaps this regimen has had something to do with the infrequency of reactions.

Twenty-one of the thirty manifested before the completion of treatment more or less symptomatology suggestive of the menopause. In two cases only were such symptoms sufficiently annoying to warrant the use of ovarian extract and in these for only two or three months. The most common complaint is that of flashes at night.



During treatment slight nausea is not infrequently noted while the patient is on the table. This can be practically eliminated by fan ventilation in the treatment room, by instructing patients to appear for treatment when the stomach is empty and by the occasional administration of sodium bicarbonate by mouth. About one-fourth of our cases showed some slight reactionary effect manifested by insignificant malaise in the first, second or third day following treatment. In one case reactionary symptoms were very marked, the patient complaining that for nearly a week after each exposure she experienced all the disagreeable symptoms of pregnancy with marked nausea and vomiting. In this instance the difficulty was largely corrected by the administration of half doses every ten days in place of the full dose once in three weeks.

Subsequent malignancy did not appear in any case chosen for treatment. This is of course a vital point of consideration and becomes the hot point for discussion between surgery and x-ray. The recognition of probable cervical malignancy is not difficult, as a rule, if careful inspection is made. Fibroids very rarely degenerate and when they do they give sarcoma. Sarcoma under surgery shows a recurrence percentage of eighty-seven and one-half. Probably the x-ray would not do worse. Fundus carcinoma is relatively infrequent, gives a rather characteristic history and can in most instances be recognized by the diagnostic curettment.

There are definite contraindications for x-ray treatment. The large fibroids, when there is no contraindication for surgery, belong to surgery. Those cases which are poor operative risks can be helped, it is true, but the process is a long one and in most instances the end result is improvement, not cure. Cases complicated by inflammatory processes in the tubes should be carefully excluded from the x-ray list. It is possible that adhesions from ancient pyosalpingitis can be loosened or dissolved by x-ray therapy. Surgery should care for the necrotic fibroids, pedunculated tumors and all the cystic pelvic cases—urgent cases.

On the other hand the x-ray has a well established field for success. Particularly its

results have been brilliant in those cases where surgery is as a club after a fly and where internal medicine has achieved at best mediocre results. I refer to that very large number of women who are neither very sick nor very well for the decade preceding the time for their change of life. The majority of them never submit to the surgeon and their tradition is that internal medicine has little to offer. They have periods of flooding, but after a week or so in bed they get over them and again attempt their duties of life. They do not particularly enjoy living because they feel dragged out and their nights are often as bad as their days because of the disturbance of hot flashes. They have reached the zenith of life, their families are mature and they should be just ready to enjoy the fruits of existence when this annoying stage of life is encountered. They run low in weight and vitality. Their hemoglobin often drops far below normal and existence is worth while only in the hope of better days to come. This is the field par excellence for x-ray. Three to five painless treatments, and their flooding is a thing of the past and the regular monthly periods are things of the past. X-ray here acts like a tonic. Weight and hemoglobin pick up and your patient feels like a well woman again, ready to appreciate the good points in living. In this class of cases the x-ray should and does show one hundred percent successful results.

In conclusion I wish to reiterate that careful history, thorough examination and painstaking care in selection can define a large group of pelvic cases which are better treated by the x-ray than by any other means available. As compared with surgical relief, we can offer our patients the considerations of lesser expense, shorter loss of time, lower mortality and less physical discomfort.

On the other hand, it should be freely admitted that without the greatest of care, x-ray may easily be guilty of sins of commission and sins of omission of extent sufficient to ruin its own scientific status and inflict upon its patients disaster beyond the reparative power of the entire practice of medicine.

## PERSONAL REMINISCENCES OF THE EARLIER YEARS OF SIR WILLIAM OSLER.\*

EDMUND J. A. ROGERS, M.D., Denver.

Mr. Chairman and Members of the Medical History Section of the Medical Society of the City and County of Denver:

It gives me much pleasure, in response to your invitation, to give you some personal reminiscences of the earlier days of Sir William Osler.

It is seldom that in reviewing the life of one who attained his classical three score years and ten we can say, as we can say of him, that his career was an uninterrupted sequence of brilliant achievements and unqualified successes. His unbroken advancement was, I believe, mainly due to the simplicity and beauty of his ideals and the definiteness and unselfishness of his ambitions, and not only did he hold, with unvarying persistency and consistency, to his laudable and creative purposes, but every element in his environment seemed to cooperate towards their consummation. For example, who could have imagined that Johns Hopkins or, as Osler was so fond of calling him, Saint Johns Hopkins, would have been inspired to make a will through the execution of which Osler was enabled to play a great part in the establishment of a humanitarian and educational institution in exact conformity with his long conceived dreams?

William Osler was born near Toronto, Ontario, in 1849. His father and his father's brother, both Anglican clergymen, had come from the south of England in the pursuance of their professional work. He was the youngest son in a large family of marked ability. Two of his brothers have attained eminence in Canada.

I first knew William Osler in 1866, when, of my own motion, I was allowed to leave a school where scholarship was held high, but where the manly qualities which lead to higher character formation were very defec-

tive, to enter Trinity College School, at Weston, near Toronto. The school was then not large, so all of the boys knew each other well. Here I at once discovered that the atmosphere and general tone was of the most elevated character. A spirit of the highest refinement, culture and straightforward manliness prevailed everywhere, both in school and in the general life of all.

It was easily recognized that this elevated tone was due to the influence and example of a small group of the older boys, and, of these, Osler, then seventeen, stood markedly the leader. His personality was so strong that his influence extended to every department, and his consistent, high qualities were such that in every scope of activity he was recognized without bitterness or jealousy of any kind, as the head. This applies not alone to scholarship and sports of every kind, but his strong independence and clear, positive character stood out in everything. I do not think his elevating influence in the school can be exaggerated, and it was such that when he went on from school to college the effect of his personality still remained and was unquestionably a strong element in giving character to the school for many years.

While at Weston, Osler, with many other boys, lived in the residence of the founder and warden of the school, the Rev. W. A. Johnson. Father Johnson was a high church Anglican clergyman of a broad type. He taught only in the divinity department. He was interested in all the activities of nature, and directly from him Osler probably first learned the use of the microscope, as with him he investigated the pools and woods in the study of the many phenomena of life.

On entering college, Osler formed a somewhat similar friendship with Dr. James Bovell<sup>1</sup>, a member of the medical faculty, who had, when necessary, visited the school. Dr. Bovell was much interested in all philosophical questions and in all natural phenomena, and with him Osler devoted much of his time continuing the investigations begun in Weston. Dr. Bovell was subsequently ordained an Anglican clergyman. In the inscription of "the first pathological report

\*An address delivered before the Medical History Section of the Medical Society of the City and County of Denver on January 28, 1920; repeated by request at the regular meeting of the society on March 2nd, and written out by invitation for *Colorado Medicine*.



from a Canadian hospital", Dr. Osler recognizes Dr. Bovell as his teacher.

Osler continued his studies in Toronto until 1870, when he transferred his studentship to McGill College, Montreal. Here his devotion was given to Dr. Palmer Howard, who held the chair of medicine in McGill. Dr. Howard was the impersonation of the dignified, conscientious, old-school, family physician. His devoted friendship and great admiration for his brilliant student were unequalled. In a short obituary<sup>2</sup> of Dr. Howard, given in his address *Aequanimitas*, Dr. Osler says that "to have known Dr. Howard was a liberal education".

To these three men Osler acknowledges his great indebtedness in the dedication of the first edition of his *Practice of Medicine* in 1892. In a later address<sup>3</sup>, he said that to these three men "I owe my success in life, if success means getting what you want and being satisfied with it".

At this time Osler was a consistent devotee of the ritualistic school of the Anglican church, not, in any way, a whining, canting churchman, but one of the robust, straightforward, manly type; his beliefs in which influenced at all times every phase of his life.

While a student in Montreal, as in every other period of his life, Osler succeeded in establishing the strongest friendships with those about him through his genial companionability, his wonderful faculty for hard work and the constant acquisition of knowledge. He graduated from McGill in 1872 and, at once, crossed the Atlantic for two years' hard work, chiefly in physiology and pathology in London, Berlin and Vienna. Here he came under entirely new influences, but continued his hard work and his acquirement of useful and scientific knowledge. The European medical worker for whom Osler developed the greatest sense of admiration was Virchow<sup>4</sup>, then preeminently the leader in Berlin. He gained an immeasurable admiration for the German methods of medical teaching, especially in the clinics, and it then and there became his ambition to see the same mode of teaching introduced into our schools in America, and then, too, he formed a determination that he would become a great clinical teacher.

You will remember that the early years of the seventies were momentous in the philosophical as well as the medical history of the world. Darwin's work had opened a new point of view to those who contemplated the meaning of Life. Tyndall's celebrated address<sup>5</sup>, which affected everyone, was given in Belfast in '74, and Huxley was leading, by his numerous articles, the debate as to whether man's personality was confined to pure automatism. Osler was undoubtedly influenced in the environment of these discussions.

Many men, brought up as Osler had been, found it hard to separate a deeper spiritual religion from the dogmatic theology into which they had been educated. Such a man, when his theological dogma loses its reality, is apt to feel that there is nothing for him but the opposite extreme of absolute nihilism. The reality of his old theological dogma seems to have been lost to Osler at this time, but his whole life was such as to make one believe that, while he could become a conscientious agnostic, he could never accept the soulless philosophy of determinism. He was an earnest admirer of Huxley in all that he did and wrote; and Huxley, at first, tried to explain all mental phenomena as epiphenomenal<sup>6</sup>; that is, that all the manifestations of consciousness, in the broadest meaning of this term, were simply a result of the mechanistic activity of the cells of the organism. This theory was too illogical to long dominate the thinking world.

Osler<sup>7</sup> seems to have adopted, even at this early date, the idea now known as the "Double Aspect Theory of Parallelism"<sup>8</sup>, that is that the psychic and the physical elements in the individual move synchronously along parallel lines in every phase of life but in no way influence or interact upon each other.

I distinctly remember an incident which tends to show that Osler leaned strongly towards this theory. One day, in his rooms, after he had been lecturing on the physiology of the brain, I asked him if he recognized no energy beyond that produced by tissue action in the processes of thought or in affective activity of any kind. In substance he answered, with much feeling, that

we must not let such questions enter our minds in the study of physiology; that the discussion of such subjects would only cause confusion and uncertainty; that in scientific work we must confine our attention to observable materialistic facts.

We easily see that, by following the theory of parallelism, we are enabled to repress in our minds a great field of activity, the existence of which we cannot deny, by considering it the parallel of mental and psychic phenomena, and so give our whole attention to the other parallel in which the mechanistic phenomena occur.

This theory of life activity became the most generally accepted by the scientific world during the succeeding quarter of a century. It now seems to have been rather a scheme to avoid facing the question than one to clear it up. Freudian repression is often simply a subconscious subterfuge. Any form of interactionism was during this period apparently looked upon by the leaders in scientific thought as an indication of a defective mind.

I do not believe that in his innermost mind Osler ever lost the reality of the spiritual aspects of the religion of his early days. No man ever led a more purely straightforward, spiritual life. In all his actions and in all his dealings the one ruling axiom throughout his life was the Golden Rule, and to it he consistently held in his relations with every man.

Osler returned to Montreal in 1874, and although only twenty-five—still a boy in the opinion of the conservative community in which he had grown up—he was almost at once inaugurated into the McGill professorship of The Institutes of Medicine. As in the University of Edinburgh, the department of Institutes of Medicine consisted jointly of physiology and pathology, so that it fell to his lot to teach both of these subjects. The rule of the Montreal General Hospital was that an autopsy should be held upon the body of each patient dying in the institution, and the position of pathologist to the hospital came to him with that of the professorship in the college.

No more definite indication of the strong force of this independent, progressive young

man's personality can be noted than the fact that he came at once to be the directing influence of the faculty of the medical college, made up of men much his seniors; not that he was assertive of his opinions above those of others, but all that he suggested was so reasonable and so well digested and worked out that it was at once adopted by all as the wisest course to follow. Osler was always a reformer, but his reforms were brought about through evolutionary processes, not through revolution. He soon became the secretary of the faculty and the registrar of the college.

Fully established in these offices I found him when on October 1, 1877, I entered McGill College Medical School.

Owing to the opinion held by my friends, supported by their medical advisers, that I was doomed to die from inherited tuberculosis before I was twenty, I was taken from school before my final year was completed and turned out into the open air life of the lakes and forests of the north and the plains and mountains of the west. Such a life was, of course, absolutely desultory and not conducive to any ambition for study or, indeed, systematic work of any kind. In 1877, tiring of this, and hoping to turn myself into a more useful course of life, I determined to study medicine and selected McGill as my school. I had scarcely heard of Osler during the intervening ten years. Arriving at the college on the opening day, I found the first formality was an address to the registrants by some member of the faculty. I was surprised and pleased to find that Osler was the one selected to perform this function.<sup>9</sup>

Dr. Councelman<sup>10</sup>, in the Osler seventieth birthday number of the Johns Hopkins Hospital Bulletin, speaks of this as perhaps the first of Osler's more brilliant addresses. Some of you have heard him read, in his beautiful style, one of his always studiously prepared and thoroughly worked out addresses. To simply have read the words is not enough, for his so-called magnetic personality gave meaning, persuasiveness and force far beyond that which could be conveyed by any language.

He congratulated us upon our choice of



a life calling; told of its arduous, constant work, and of the self-sacrifice and devotion it demanded; said it was above all occupations because its work was one solely for the benefit and advancement of humanity, and was so beyond all selfishness that it offered none of the honors and emoluments of other professions, and that its only reward would be in the satisfaction of conscientious, useful work well done. He advised that each day's work should be sufficient in itself, and that no fear of difficulty or desire for the future should disturb the equanimity and joy of that day. Constant, concentrated work was the key to success. Science and the humanities<sup>11</sup> should be all sufficient.

Indeed, his ideal made the life almost that of an ascetic.

His presentation of the duties and difficulties of this, to me, prospective new life impressed me deeply; I doubted if I could attain the standards in life or work that he expounded, but it was too late to escape; I was there to register, and I proceeded to do so. When, in turn, I came before him, and gave my name, he at once recognized me. Had I been a long lost brother, I could not have received a more gratifying welcome. He was never demonstrative or effusive, but there was feeling and meaning in all that he did or said. As soon as he was free I must walk with him to the hospital, and as we went he asked me of the past years and held out every encouragement and alluring promise for the future. I was taking a step I would never regret; I was doing that which would make my life worth while in every way.

The hospital meant an autopsy, and I soon found myself for the first time in the presence of a cadaver. I had watched the advancing steps of the Virehow technique with a mixture of resolute curiosity and suppressed horror—the general inspection, the long incision, the organs removed one by one. Then, lifting the released intestines en masse, he suddenly turned to the group of students, back of whom I stood, and said: “Rogers, you prepare these for inspection.” Can you imagine my embarrassment and emotion? But I succeeded, with the advice of senior students, in passing the ordeal.

This was a typical Oslerian act.

Superficially, it seemed all dry humor, the sort of practical joke for which he was celebrated, but in reality it was an initiatory test. The questions in his mind were “What ability has this man to meet an unexpected and unusual situation?” “What capacity for work has he?”

Work was to Osler<sup>12</sup> the master word of progress and success. If a man were not ready and willing to face work with courage and equanimity, he was only a useless clod in the profession. Consequently the giving of any kind of useful work was his greatest test as well as the greatest boon he could offer any student. These demands for work were expected and often dreaded by the students who came near him. He always had a group working for him, and it was often a disappointment to one to find that the work had been given, not because it was needed for some purpose, but simply was work for work's sake; however, the doing of it was always a beneficial experience for the worker.

Leaving the hospital we walked back to his rooms, which I was told were from that time on to be my headquarters. He was then living with Dr. Buller on St. Catherine's Street in the ordinarily built-in city house with a front and back room on each of three floors, the back parlor on the first floor being Buller's consulting room, the front room a waiting room, used in the morning as a breakfast room. The second floor front room was Osler's consulting room, library and office; the other rooms were used as bedrooms. Osler said I was to become the third member of the family. Buller acted more deliberately, and it was some little time before these latter rooms were rearranged and I was given the third floor front as my bedroom and study. Here, until I left Montreal after my graduation, I lived all through my studentship.

Osler never did anything by halves. From those who were willing and ready to work with him his demands were unlimited, but for this he more than repaid in the opportunities and good fellowship that he returned. I thus had every opportunity for the most intimate knowledge of all his men-

tal and physical activities. Soon I found that through his whole-heartedness his friends had become my friends, but not, of course, through any virtue of mine; his pleasures and joys he shared with all those about him, talking freely of all that he had on hand, for in his ebullient enthusiasm he was still a school boy. In his course of life he was more regular and systematic than words can tell; in fact, it was hardly necessary, living in the house with him, to have a time-piece of one's own. One could tell the time exactly from his movements from the hour of his rising at seven-thirty until he turned out his light at eleven o'clock. His cheerfulness and equanimity were surprising. He never lost an opportunity of saying a word of cheerful encouragement. Nothing ruffled his wonderful good temper.

We three had breakfast together at eight o'clock. The only impatience I can recollect his ever showing was when the housekeeper was a little tardy in putting our breakfast on the table.

During breakfast Osler allowed himself leisure to glance over the morning paper, and in doing this he noted and remembered all important events going on in the world. Nine o'clock found him sitting down at his desk in his work room. His favorite working place all through his life was his library table. In his tastes and instincts he was essentially literary, and he always had a day's work laid out before the day began. Hours for meals, hours for recreation, hours for every duty were kept with absolute rigidity. He was always deliberate in every movement, never rushing, never hesitating. One of his constant principles was that each day should be complete and sufficient within itself.

At 10 o'clock p. m. exactly he went to bed, and the hour from ten to eleven every night was devoted to the reading of non-medical classics. He never read light literature, and his favorite books were few but were thoroughly studied. He gives a list of what he calls his "bedside library" on the last page of the later editions of *Aequanimitas*<sup>13</sup>, and these were the books that he always liked near him. In his early days "*Religio Medici*"<sup>14</sup> was his constant compan-

ion, and from the diligence with which he read and reread it, he must almost have known it by heart. In his address on Sir Thomas Browne<sup>15</sup> he speaks lovingly of its influence on his life. This hour with the great writers undoubtedly was the main impulse to his great literary attainments.

At this time, Osler had no private practice and had no desire for any. An occasional case seen in consultation gave him ample material for investigation, and when he saw something that he did not understand his rule was to study that condition thoroughly and, usually, to write a paper upon it, and such papers have generally become the classic on the subject and thus laid the foundation of his reputation as a medical student throughout the world.

Many of the things that are now well known in medicine were then in their infancy. Pathology in those days was a very different matter from what it is now. We now understand that the only way to comprehend the activities of a pathological cell is to study it while it still lives and is active. Then, before a specimen was investigated in any way, it had to go through a long process of preparation.

I became, of course, very familiar with Osler's work in the dead-house; indeed, here I was soon installed as his assistant. During my second year, the hospital was unable to publish a report, so Osler made a selection of important cases and copied them all out by hand himself, mimeographed them on the instrument that was the progenitor of that now in use, and had the few copies that he made bound in book form. These few copies will now each be of value to his admirers.

His great ambition from the first was, naturally, an appointment on the staff of the hospital. These positions were not easily obtained and there was great competition for each vacancy, especially among men older than he. In 1878, however, a vacancy occurred, and every possible interest that could be roused was brought to bear. As usual his desire was fulfilled. Immediately he started for Europe and put in the summer drilling in the hospitals where he could derive the most benefit.

At this time, though a very careful clin-



ical student, he was almost a nihilist in therapeutics. He was always fond of epitomized axioms, and these were always ready and always apt in their application. One of his favorite axioms was that in the last hundred years no one had done the good in the practice of medicine that had been done by Hahnemann. This, he would explain was not due to any scientific theory or important truth that Hahnemann had advanced, but that, by the application of his methods, it had been demonstrated to the medical profession that the natural tendency of disease was towards recovery, and that the best results were usually achieved if the patient were decently cared for and properly nursed. Through this a great reform in treatment had come about. He believed that too much medicine was still being used, and that over-treatment was the medical fault of the day.

When, therefore, his time came to take charge of a section of the hospital older doctors looked on with bated breath, expecting disastrous consequences. He began by clearing up his ward completely. All the unnecessary semblances of sickness and treatment were removed; it was turned from a sick room into a bright, cheerful room of repose. Then he started in with his patients. Very little medicine was given. To the astonishment of everyone, the chronic beds, instead of being emptied by disaster, were emptied rapidly through the recovery under his stimulating and encouraging influence, the old cases nearly all disappeared, the new cases stayed but a short time. The revolution was wonderful. It was one of the most forceful lessons in treatment that had ever been demonstrated. Dr. Thomas R. Browne, in his article on "Osler and Patient", in the *Bulletin* above mentioned<sup>16</sup>, says: "It has been said by some that Sir William Osler was not particularly interested in psychotherapy, but one might say he did not need to be; he practiced it, not always consciously, perhaps, but always effectively."

His desire for the advancement and the broader enlightenment of his loved profession was a source of constant thought. His charity reached everyone in whom he could find some measure of sincerity and applica-

tion. For the doctor who made the first object of his work financial gain he had the greatest contempt. He even seemed to go so far as to think that a man could not make more than a bare living and still be an honest, competent physician. This explains many of the frictions that came in his later life.

In the analysis of character, in order to graphically illustrate the dominant features, I personally turn, not to Freud's closed circle around the big "S", but to Kempf's diagram<sup>17</sup>.

This describes the energetic stream of affective activity as flowing uninterruptedly and continuously through three equally balanced loops, which he calls variously the sexual, the nutritional and the sublimational loops. So long as the balance between these loops is maintained, he believes a normal equilibrium in personality is preserved. An increase or contraction of any loop means abnormality in that direction.

As modern psychology teaches, repression in any normal activity leads to disorder in some degree. If, however, instead of repressing, we can sublimate activity, that is, turn this energy from its primary course into a higher course, we promote health and normality.

In Osler this equilibrium was perfect and we find much of the dispositional energy of the sexual and nutritional constantly being diverted to the intellectual or sublimational loop, but that there was no injurious repression in these loops was demonstrated by his whole life, which was ideally normal. I have never, I think, known a man who had such absolute self-control; all the vegetative, instinctive activities seemed to be entirely in abeyance.

In the sexual loop he showed his perfect normality by his extraordinary equanimity, by his great gentleness and humanitarian qualities, and by his love for children and the society of refined women; while he showed the sublimation of its crasser elements by his general mental tone. Sensuality and ribald humor had no place in his mind. Any thought or expression of these were absolutely foreign to him.

He used his nutritional energy entirely to

build up and support a healthy body, that it might support a healthy mind. He was absolutely temperate in all things; indeed, almost abstemious in eating and drinking. An athlete in his youth, perfect in vigor and the complete joy of life in manhood, and in old age—remember the amount of war work he did; few did more. As Dr. Arthur Thomson tells us of him, in his recreational holiday last fall in Jersey, “with boyish glee he had been indulging in all sorts of acrobatic performances, as standing on his head and turning cart-wheels in the sand”.

Could one anywhere find a more impressive instance of vigor than that in his seventieth year he should have undertaken and successfully executed the presidential address<sup>10</sup> before the classical association of Oxford—perhaps his last, and perhaps his most brilliant address—delivered in an unfamiliar environment and along unfamiliar lines?

Briefly summarizing, we may say that the amount of work that Osler produced was immense; most versatile; always good; always brilliant, and much of it highly scientific. In scientific medicine, however, he was one of the many who took part in the great advance of the past fifty years, no one of whom stands individually preeminent.

But in the educational, sociological and cultural fields, he stands preeminently alone, a solitary genius.

No one can measure the degree to which our educational and ethical standards have been advanced under his influence. Every member of the profession has been directly or indirectly affected by his consistently held and boldly advanced principles. Every medical student during each day of his school career receives a better course because of the standards and mode of instruction that Osler has taught us.

But you have read of the greatness of his work in many biographies. My feeble effort is only a grateful memorial, in which I try to convey to you some comprehension of those elements of his personality which all did not see.

When you recognize his great influence upon the whole profession you may, in some measure, imagine the influence that the

whole-hearted geniality of his ever-cordial fellowship exercised upon me. Could I have followed his earnest advice I should have remained in Montreal and taken up, in some way, the line of life that he was following. He could not comprehend how any condition in one's social environment could compel one to leave what to him were the confines of civilization, and take up the humdrum of a grubbing practice in a far western country. At that time he thought there was little good beyond the old educational centers, and that in so passing beyond the pale, one was abandoning opportunity and was wasting time and energy. Ten years after I came here, he advised me that it was not yet too late to come back and settle down and “do something worth while”.

Had I adopted his suggestion, my life would have been very different; this only is certain, that with all its insufficiencies and failures it has been infinitely better worth while in every respect because at the critical period of my career I came directly under the benediction of his great influence.

To have known him well is a constant, un-failing inspiration. There was no other side to his character. The more intimately one came to know him, the deeper one found the genuineness of his unfathomed manhood.

You can, then, well appreciate my point of view when I say that, apart from my immediate family affairs, the remembrance of him occupies the most revered place among my memories of the past, and that, to me, all that pertains to him seems almost sacred.

#### References.

- (1) Note Aequanimitas, 2nd Edition, page 369.
- (2) Note Aequanimitas, 2nd Edition, page 10.
- (3) Note Aequanimitas, 2nd Edition, page 271.
- (4) See Address Boston M. & S. J., 1891, XXV, 425, etc.
- (5) See Presidential Address, British Association, Belfast, 1874.
- (6) Encyclopaedia Britannica, Vol. 22, Psychology, p. 602.
- (7) The inability of Osler to think in the same terms as Huxley is easily explained by the difference in their early education. We could hardly expect Huxley to have enjoyed “Religio Medici” and he certainly could not have written Osler's “Ingersoll Lecture” (1904).
- (8) Encyclopaedia Britannica, Vol. 22, page 601.
- (9) See Address Canadian M. & S. J., Montreal, 1877-78, page 193, etc.
- (10) Page 196.



- (11) Humanities. Favorite word of Osler's to express things human in their bearing.
  - (12) *Aequanimitas*, page 363.
  - (13) *Aequanimitas*, page 475.
  - (14) Note Address Guy's Hospital, October, 1905.
  - (15) Note Address British M. J., 1905, II, 993.
  - (16) Page 202.
  - (17) *Nervous and Mental Disease*, Monograph Series, No. 28, page 29.
  - (18) See Osler Obituary, B. M. J., January 3, 1920, page 33.
  - (19) B. M. J., July 5, 1919, page 1.
- With appreciation for Bibliography to Johns Hopkins Bulletin, July, 1919.

## HERNIAS IN CHILDREN.\*

L. J. WELDON, M.D., DENVER.

The subject of hernias in infants and young children is still in a state of wretched confusion as far as the determination of the cause and the management of these cases are concerned. The reason for this is that surgeons, and particularly the more eminent ones, are so widely divergent in their opinion as to the treatment. This being the case it is no wonder that the remainder of us cannot agree; consequently the laity are still under the impression that none of us knows much about it, and defer medical attention in many instances until the danger point is reached or permit the child to be burdened and hampered with the condition until it has reached adult life, whereas under wise management these patients might be permanently cured even without a surgical operation.

Harold Stiles of Edinburgh, surgeon to the Children's Hospital, stands out boldly in favor of operating in all hernias in children. He has written extensively on this subject and makes the arguments that children operated on for hernias recover in a week or two, the results are good in practically all, no harm is done to the child and only about one percent become infected. The annoyance which the child suffers from the hernia during the time it is growing up, the danger of strangulation and the harm that comes to the child from being unable to play like other children will be overcome by operating. This is the argument given also by many others in this country and abroad, and

it appears to be a most reasonable one, if viewed from an operative standpoint.

On the other hand, nonoperative treatment gives a remarkably large percentage of cures. Sixty years ago, Malgaigne made a careful study of hernias in children; his experience reached over a period of probably thirty years, during which time he observed a large number of cases. He reports that all children were examined when starting to school and again when eighteen to twenty years of age. His work shows that seventy-three percent of the hernias in children were cured spontaneously between the first and second examination, or without any medical attention whatsoever. Since the time of Malgaigne, many surgeons report cures ranging from seventy to ninety-three percent without operation. Coley and Bull report that in fifteen thousand hernias in children, ninety-three percent were cured without operation. Ochsner makes a similar report.

These figures are very significant and give an overbalance of power to the argument against operation in the majority of cases, and the above comparison is indicative of the wide difference of opinion existing among medical men all over this country and abroad, one advocating operation in one hundred percent; the other in only about seven percent; therefore, comparatively speaking, we are as far apart in our opinion and management as the north pole is from the south pole. Undoubtedly surgeons who avoid a hazardous procedure for their patients, even at the expense of more time and trouble, deserve much commendation. To such men we owe a greater debt of gratitude than we shall ever know, for they continually reestablish confidence between the laity and the profession. Many parents sedulously avoid taking their child with a hernia to a physician, purely because they dread an operation.

The sooner we establish and observe principles and methods which figures teach us are equally effective and less hazardous the better off everyone concerned will be. In other words, let us standardize as much as possible principles and methods of the management of popular conditions, so that all

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of us can be approximately correct if none can ever be absolutely correct.

According to facts and figures, there appear to be only a few distinct points demanding radical operation in children. The other cases can be cured by nonoperative treatment. These points are few in number, easily determined and are as follows:

1. A congenital defect in the development of the internal oblique and transversalis muscles; a very limited attachment of these muscles to Poupart's ligament produces a perceptible deformity of the abdomen, the three points of prominence, or what the French surgeons call the abdomen of three hills. When this condition is distinct in connection with a hernia it will not heal spontaneously.

2. When a strip of omentum or intestine becomes adherent to the sac and cannot be dislodged from the canal.

3. When all mechanical appliances and positions fail to keep the hernia reduced and when it is difficult of reduction.

4. Cases complicated by hydrocele of the cord which keeps the inguinal canal permanently open.

5. Strangulation.

6. Undescended testicle.

Therefore hernias in children complicated with any one of the above mentioned points must be operated upon in order to be cured. But cases complicated by any one or more of these conditions constitute only about seven percent of all. Just the reverse is true of those not complicated by the points mentioned above; they can be cured without operation, this class constituting about ninety-three percent.

It would be useless to attempt to define a nonoperative treatment which would apply to all cases, because of the multiplicity of conditions causing and affecting them. But there is one principal point around which all the nonoperative treatments hinge, and that is the abnormal intra-abdominal pressure. This pressure must be overcome. The chronic bronchitis, coughs and colds which return every winter must be eradicated by proper clothing, hygiene, feeding, baths, arranging proper sleeping quarters, medication, etc. Rickets and other forms of mal-

nutrition must be dealt with in the proper arrangement of diet. Laxatives, massage and proper diet are given to overcome and prevent constipation, so that the child will not be compelled to strain at stool. In all gaseous conditions of the gastro-intestinal canal, special care should be given to diet and medication; operation for phymosis and adherent foreskin should be done; also any other obstruction to the outflow of urine should be removed, e. g., I have removed small calculi from the urethra in several instances.

All nonoperative cases should be placed in bed with the feet and hips elevated so that the intestines and great omentum will gravitate away from the inguinal canal. When it is impossible to maintain the Trendelenburg position because a child is nervous or unruly, a system of adhesive straps and pulley may be used with equally good or even better results than the Trendelenburg position. Ochsner claims that there are many cases which it is not necessary to keep in bed all the time. Others do not favor such plan, claiming that it requires a longer period to accomplish the same results in some, and no result in others.

Ordinarily it requires from five to seven weeks for these hernias to close, but care should be taken of these little patients for a much longer period of time to insure a good sound closure. It is singular that in the literature very little stress is laid upon the truss in the treatment of these hernias, but as a matter of fact nearly all clinics apply some sort of truss. Many devices are made use of, and the frame truss is probably the least practical in infants and very young children, because it is almost impossible to retain it in the proper position. The wool truss described by Fuld, on the other hand, is very practical. It is simple, easily retained in position and inexpensive. Any device, however, which will make gentle pressure over the inguinal canal and internal ring is sufficient, provided it can be retained in position.

The operation best adaptable is the Ferguson, Ferguson-Andrews, or some modification of these befitting the case. The incision is made precisely as in the adult, open-



ing the entire inguinal canal. At this point the technic should be carried out with the utmost care in the handling of the very delicate structures involved. A good plan is to leave the cord lie unmolested as much as possible in the bottom of the canal; picking up the peritoneal tissue instead and making gentle traction upon it, it can usually be wiped away from the cord well up to the internal ring. After opening the sac and investigating its contents, it should be ligated by a purse-string suture and removed.

Another point in the technic demanding especial care is the trimming of the sac from the testicle. Plenty of it should be left—in fact, all of the lower or testicular portion should be left, for this is in reality the tunica vaginalis, and will be needed to cover the testicle as development goes on. This applies more particularly when operating a hernia complicated by an undescended testicle. The Bassini method of transplanting the cord, so popular, and probably the choice of operations in adults, should be avoided in operating upon hernias in children because manipulation and transplanting of the cord is done with considerable risk of doing permanent injury to some of the small and very delicate tissues of the cord, resulting later in a degeneration of the testicle, usually atrophic and fatty.

If the inguinal canal is straight and narrow so that the inner and outer margins easily come into apposition, it will be sufficient to leave the cord in the bottom of the canal, see to it that the opening of the internal ring is not too large, then approximate the edges of the aponeurosis of the external oblique muscle and then the skin; but if the canal is large, irregular or distorted, or if there is deformity because of deficient attachment of the internal oblique and transversalis muscles, then the best procedure is to leave the cord in the bottom of the groove, suture the internal oblique and transversalis muscles to the shelf of Poupart's ligament, and imbricate the aponeurosis of the external oblique, which is the Ferguson-Andrews operation.

Smaller instruments than are usually used in abdominal operations on adults are highly recommended here because the heavier in-

struments are awkward, the heavy hemostatic forceps takes too large a bite in the tissue, and the crushing force is too powerful.

All bleeding points should be picked up with a very small bite and ligated with fine gut. Soiling of the wound in babies is a great problem but must be prevented; a vaseline or collodion dressing is the most practical method.

#### DISCUSSION.

**W. A. Kickland, Fort Collins:** There is not very much that I can add to Dr. Weldon's excellent paper. I think Dr. Kerley, in his latest book on diseases of children, gives the recoveries of hernias in infants without operation as a little higher than Dr. Weldon does. He says that ninety-eight percent will recover without operation. He also advises the use of the frame truss. My operative experience in hernias in children has been limited to half a dozen cases. I recall now two, one of seven years and one of eight, in both of which there were symptoms of strangulation. In those cases, of course, there was no question but what one must operate at once. There was one little point in the operation that Dr. Weldon did not bring out, and that is, in many of these cases the fascia of the external oblique is very thin, and if one splits the fascia without first securing it, or without securing it as he splits it, it is sometimes very difficult to find when one makes his final closure. It is well to secure the edges with two pairs of forceps, and leave these forceps in place until the sac has been closed and the other work has been done so that it is possible to pick up these edges and be assured that we have the external oblique fascia when we do the closure.

#### COMPLETE EPISPADIAS, WITH A REVIEW OF THE LITERATURE.\*

**LEWIS I. MILLER, B.A., M.D., Denver.**

Probably no congenital deformity is more distressing than complete epispadias, which is usually accompanied by an extrophy of the bladder. In childhood the sufferer is a constant source of annoyance to his parents; in youth, a burden to himself, uncompanionable on account of odor, his abdomen and thighs bathed in urine, excoriations occurring for which there is little relief. In early manhood when healthy blood courses through the testicles and vague desires arise in his brain, he grows moody and melancholy and avoids company, for he begins to feel that he is unfit to ac-

\*Read before the Medical Society of the City and County of Denver, September 16, 1919.

complish that one act for which he has been ripening.

It was while in this mental condition that a young man aged nineteen came under my care. Before going into this particular case, I wish to review the literature; and there is a vast amount on this subject, from 1860 to the present time, for the literary men of our profession have not neglected epispadias and one can not go through an index medicus for a single year without stumbling upon two or three articles on the subject. However, I have been unable to find a single case which presents all of the developmental anomalies which this present case shows.

Epispadias and hypospadias are congenital deformities occurring in both males and females, consisting of a deficiency of some portion of the urethral walls. They may occur as the result of disease or injury, but rarely.

The deficiency may exist in any degree from a slight cleft at the end of the penis, or a fistula, to the entire absence of the wall above or below, so that there is no canal at all, this often being accompanied by an extrophy of the bladder either complete or incomplete, along with an absence of the symphysis pubis and a separation of the pubic arches, with an anomalous condition of the recti muscles and a shortening of the anterior abdominal wall, especially the distance from the umbilicus to the symphysis pubis. The latter is the condition of the case under consideration.

For an explanation of the developmental anomaly responsible for the various degrees of epispadias and extroversion of the bladder, we are indebted to the valuable monograph of Dr. Berry Hart of Edinburgh, who writes as follows:

"The cloacal membrane, as was first pointed out by Kolliker, and afterwards confirmed by others, has at one time no mesoblast, and is thus a part structurally weak. The upper boundary of this membrane is the naval, and its lower the junction of the end-gut and entodermal cloaca. In the adult this lower point is on the perineal body in front of the anus as in a rare malformation, viz., persistent end-gut in a female child; this part of the gut was found attached

to skin in front of the anus. In the adult, therefore, the cloacal membrane is represented by the mesial region from naval back to perineal body—the anterior boundary of bladder, pubes, urethra and vestibule."

The best explanation of extroversion is afforded by the facts now known as to bladder development and the cloacal membrane. The bladder is derived along with the urogenital sinus from the anterior division of the entodermal cloaca. This cloaca has the cloacal membrane as its anterior boundary, and as this boundary has no mesoderm at one period, it may yield or cleave. This yielding, if complete, necessarily exposes all that is derived from the anterior gut division, i. e., bladder, urogenital sinus, lower third of vagina, etc. Less degrees of fissure in linear extent or depth give the other lesions. These are therefore explained, as Keibel has so well shown, by the actual development of the parts plus some bursting or dilating cause which, if it does occur (and of that we have as yet no proof) must do so at an early period of "embryonic life".

It is unnecessary to give a detailed description of all these lesions. Suffice it to say they consist in order of severity of: partial epispadias where the deeper part of the dorsal wall of the urethra is developed; complete epispadias where the dorsal wall is entirely absent; subsymphyseal extroversion, where the sphincter at the neck of the bladder is deficient and there is more or less protrusion below the symphysis of the mucous membrane of the posterior wall of the bladder; and complete absence of the symphysis pubis plus absence of the bladder, the bladder being represented by an extrophy of its wall, the trigone and ureteral orifices being distinctly visible on the anterior abdominal wall.

The indications for treatment are obviously twofold, namely: to rid the patient of the incontinence and to repair the deformed organ. It is the incontinence and not the deformity which causes the patient to seek advice, and it is this condition which has so severely taxed the ingenuity of the surgeon. Time will not permit me to describe in detail the various operative procedures which have previously been adopted. More-



over, the results of these procedures have proven very disappointing.

The great amount of literature which is found concerning the operative treatment of both hypospadias and epispadias is eloquent proof of the unsatisfactory results which usually have been obtained. This has been particularly true of epispadias. I therefore shall merely review briefly the more practical methods of operation. The modern text books on surgery do not as a rule mention these.

In 1895, Cantwell presented a method for the operative treatment of epispadias by transplantation of the urethra to its normal position between and below the corpora, forming "a penis, normal in the relation of its component parts and normal in appearance". Cantwell's procedure was to build a urethral tube from the gutter-like groove on the dorsum of the penis, by bringing together the inner edges formed by two longitudinal incisions on either side of the groove. This newly-formed urethra was then dissected entirely free, and was dependent for its blood supply upon a very narrow pedicle at the base. He says: "A flap is formed of the whole urethra, and the latter is held up out of the way while the cavernous bodies are separated either by light touches of the knife or by blunt dissection. The urethral flap is then laid in the gutter thus formed, and held in position by two sutures through mucous membrane and skin tied on the under surface of the penis." Cantwell also drains the field of operation from below by the establishment of a perineal fistula.

Sidney F. Wilcox of New York does the following operation: After removing the hair from a strip over the pubes by means of an electric needle, two parallel linear incisions about half an inch apart are made from the pubes to the end of the penis along the anterior surface of the organ. Then a flap is dissected from the pubes and turned, skin side downward, to form the roof of the urethra. Afterwards two skin flaps, previously dissected from the dorsum and sides, are drawn toward the median line, covering over the flap which is formed from the skin taken from the pubes. In order to relieve

the tension of these flaps, longitudinal incisions through the skin are made along the sides of the penis so that the flaps may slide more easily toward the median line. Perineal drainage is also used in his method now, although he used to use a catheter left in the newly made urethra.

James B. Bullitt of Louisville, Ky., modifies Cantwell's technic. He cuts a sufficient flap from the underlying preputial apron, which is then converted into a tube by suture and finally is drawn through a tunnel made through the glans penis. It is then united over a soft catheter to the already formed proximal portion of the urethra. The remaining steps of the operation are carried out in accordance with Cantwell's recommendations.

Dr. Carl Beck of New York described an operation on a boy aged four, who presented a cherry-like glans, which by being slightly upward, opposed itself against a projecting abdominal fold above. When the glans was pulled forward or downward, a short penis appeared, the upper portion of which showed total absence of a urethral canal. Instead there was a broad furrow lined with a thin mucous membrane which continued into a large funnel-like orifice that permitted of the introduction of a finger into the bladder. When the penis was left to itself the glans covered this opening like the cork in a bottle. He operated on this case by dissecting the wall surrounding the orifice, including the whole urethral gutter, in just the same way as a hernial sac including the cord is liberated and mobilized in the radical operation for inguinal hernia. This plan was carried out by making a continuous incision around the funnel as well as the outer margins of the urethral gutter, the aim being then to shell out a coherent canal, which was meant to be the new urethra.

Dr. J. B. Barney of Boston described the following operation: The urethral gutter already formed is carried out to the very end of the glans by dividing this structure longitudinally and to the proper depth. In order to prevent its edges from again uniting, the groove is kept constantly lined with gauze or rubber tissue until the mucosa has covered the raw surfaces. The prepuce,

which is always rather voluminous in these cases, is used to form a roof over the urethral gutter. To this end a transverse button-hole incision is made through it just below the frenum and extending laterally nearly to its edges. At the same time the lower edge of the prepuce is denuded by the removal of a narrow strip of skin, and a similar procedure is carried out on the fold of pubic skin which roofs the urethra at the root of the penis. The glans is then drawn through the button-hole slit in the prepuce so that the denuded lower edge of the latter now comes well up on the penile shaft. It will also result that the glans is completely surrounded by the edges of the button-hole incision. The plastic is now completed by suture of the cut edges, the inner layers being united in the same manner with fine silk. The unusual redundancy of the prepuce allows this union to be made without tension.

Dr. H. H. Young of Baltimore modifies Cantwell's operation by leaving the skin for the new urethra attached to one corpus cavernosum in order to secure a better blood supply, and then rotating this structure into place.

The above methods dealt especially with the repair of the penis; the following two methods may be used in exstrophy of the bladder as well as in malignant conditions of the bladder.

Dr. F. N. G. Starr does the following operation in complete epispadias with exstrophy of the bladder: after packing the pelvic and abdominal organs out of the way, he opens the bladder, recognizes the orifices of the ureters and passes a ureteral catheter for about three inches into each of these. He then frees a rosette of the bladder wall on each side, with its urethral orifice, dissecting both ureters from their beds of areolar tissue for about two inches. A suture of No. 1 catgut is then passed through the rosette and tied around the catheter. Then a curved forceps is passed into the rectum and pressed against the lateral wall. An incision one-half inch in length is made just over the point of the forceps. The catheter on that side is then threaded into the forceps and withdrawn from the anus, while the rosette

is carefully tacked through into the lumen of the rectum about three inches from the anus. The forceps is again introduced, pressed against the opposite lateral wall and the same procedure carried out. When both ureteral orifices with their rosettes of bladder wall are properly in the rectum, the opening in the rectal wall not required for the ureter is closed with No. 1 catgut, one loop of the suture being carried through the extraureteral tissue to prevent the possibility of its slipping back into the pelvis. The remainder of the bladder wall is then cut away and a drainage tube is carried from the pelvic floor up through the original opening from the bladder onto the abdominal wall, and the operation is completed.

H. J. Stiles of Edinburgh divides the ureters as closely to the bladder as possible by the intraperitoneal route and then transplants them obliquely into the wall of the pelvic colon in the same manner as the ureter normally enters the bladder. In that way the ureters pass for about two centimeters within and between the muscular coats of the bowel before dipping into its lumen. He argues that this oblique transplantation allows the muscular coats of the pelvic colon to act as a valve and prevents an ascending infection from the bowel to the kidneys. Infection has been the great draw-back in these operations, especially when the mouth of the ureter dipped directly into the lumen of the bowel. He does the operation in two stages, first transplanting one ureter then waiting from two to three weeks for the transplantation of the other. For the technique of this operation, I refer you to his article in the Transactions of the American Surgical Association for 1911.

To sum up the various methods employed, it may be said that they have consisted either simply in narrowing the urethra or in combined narrowing with lengthening; that is the repair of the penis and urethra by plastic operation in cases of epispadias without exstrophy of the bladder; and by transplantation of either a rosette of bladder tissue including the mouths of the ureters, or the ureters cut from the bladder, into the



pelvic colon, in cases with exstrophy of the bladder.

The striking conclusion is that every case of epispadias must be treated differently

age of eleven months, with perfect results. He has had no disease of childhood or early adult life.

**Family History:** The father has ulcerative tuberculosis. The mother has tuberculosis and a mitral insufficiency. She has had four spontaneous abortions in the early months of pregnancy and three full-term still-births. One of the still-births presented a spina bifida, the other was a case of hydrocephalus, the third was a case of hydramnios where pregnancy had to be interrupted at the end of the eighth month. The above was assumed from the description of the mother, who possesses the average amount of intelligence. The patient has one living brother, aged seventeen, normal. No blood relation exists between father and mother. Wassermann on both father and mother, negative.

**Physical Examination:** The patient is a rather well developed individual, weighing one hundred and thirty pounds. Eyes, nose, throat and ears are normal. Heart, lungs and liver are normal. Reflexes are normal.

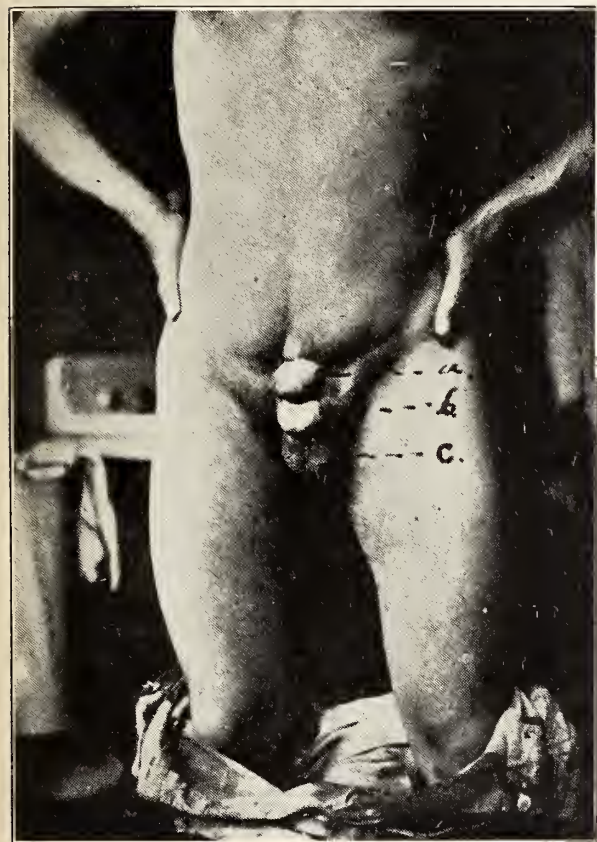


Fig. I—Front View.

(a) Exstrophy of bladder. (b) Rudimentary penis. (c) Scrotum.

from others in order to repair the developmental anomalies, of which there are no two exactly alike, and this explains the vast amount of literature and new methods for the treatment of epispadias.

**Case Report:** The present case is that of a boy aged 19, of Jewish descent, who came to Denver about a year ago from Peoria, Ill.

**Present Complaint:** Patient complained of incontinence of urine, existing from birth; intermittent spasms of abdominal muscles, causing pain, especially on attempting to change positions; difficulty of locomotion.

**Past History:** He was born in this condition through a normal labor, without the aid of instruments, although being first-born and presenting an enormous left inguinal hernia, which the mother describes as being almost as large as an infant's head.

He was operated on for the hernia at the

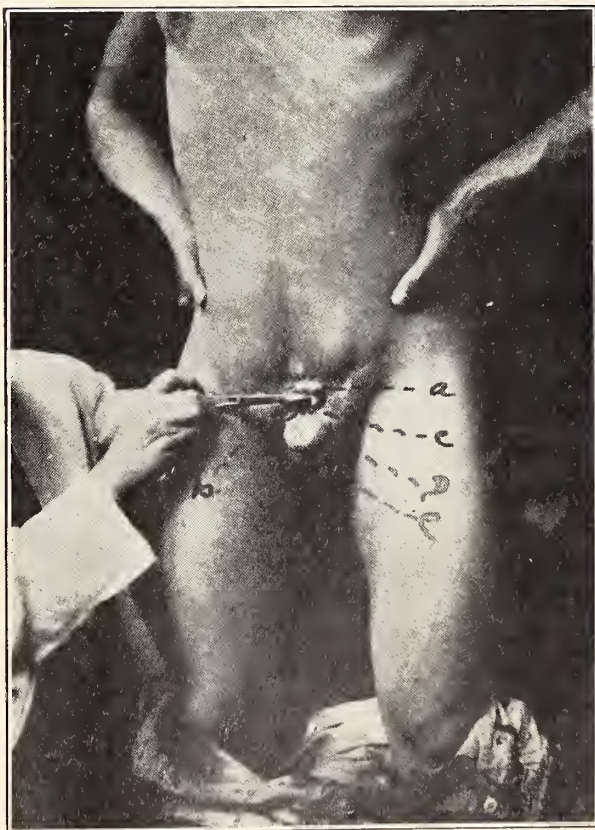


Fig. II—Front View.

(a) Exstrophy of bladder retracted. (b and c) Orifices of right and left ureters. (d) Rudimentary penis. (e) Scrotum.



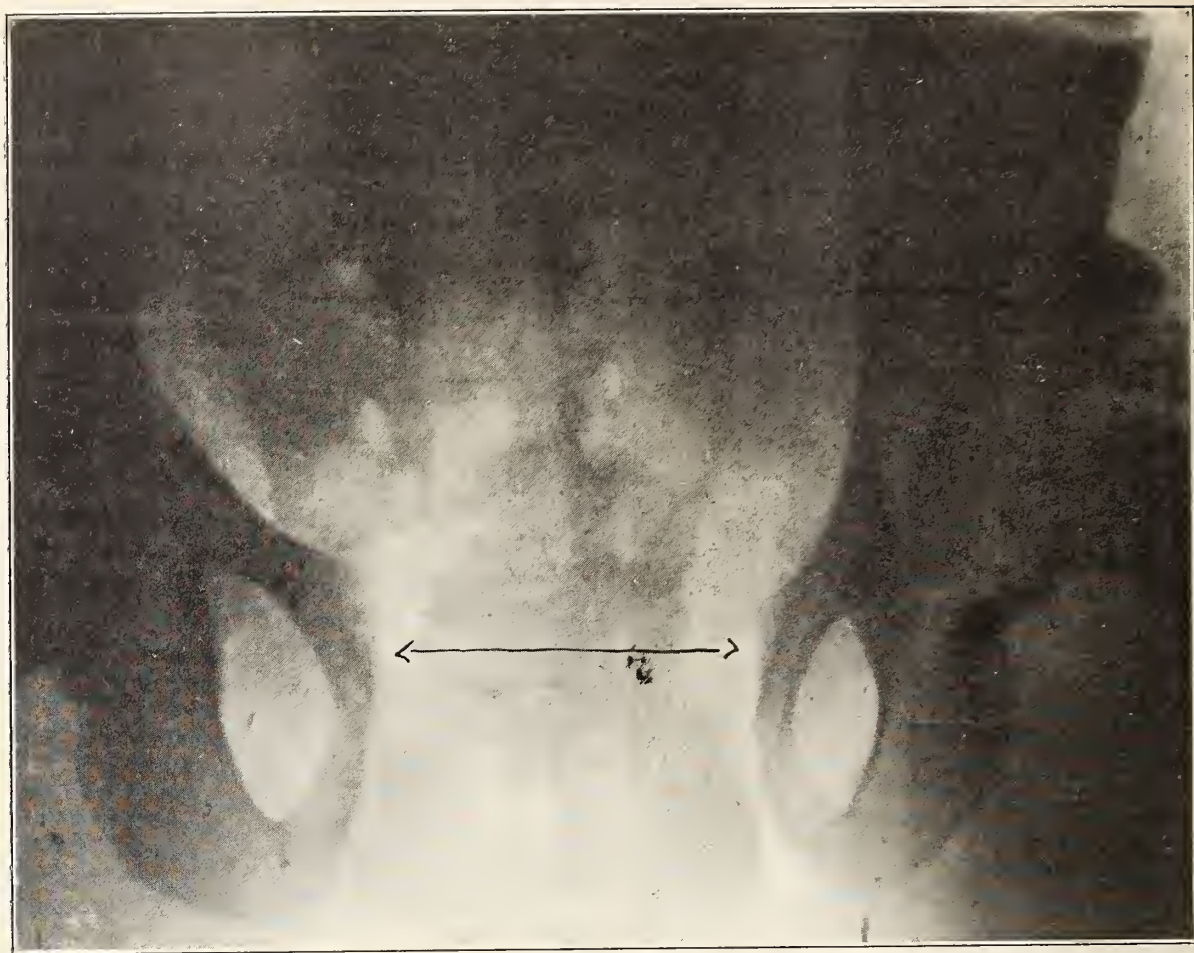


Fig. III.

Roentgenogram, showing total absence of symphysis pubis with separation of pubic rami.

The abdomen presents a shortening between the umbilicus and pubic region; a bulging at the umbilicus, which is an exstrophy of the bladder, the size of a small hen-egg, that when turned up brings into view the trigone of the bladder as a pale colored triangular space characterized by a smooth surface and intimate adhesions between its mucous and muscular coats; from the base of this trigone may be seen the orifices of the ureters about three cm. apart, from which there is a constant dribbling of urine.

By palpation it is revealed that there is an absence of the symphysis pubis, which accounts for the difficulty in locomotion. His gait is like that seen in congenital hip dislocation.

An examination of the sexual organs shows the following condition:

The penis is about four cm. in length and rudimentary, with an apparent absence of the corpus spongiosum and the presence of a dorsal groove between the corpora caver-

nosa; or the corpus spongiosum may be present, but instead of lying in the inferior groove between the two corpora cavernosa and having within it the urethra, it lies above the corpora cavernosa and the dorsal groove represents the floor of the urethra, with its roof absent. This coincides with the definition of epispadias, that it is a condition in which the urethra opens on the dorsal surface of the penis, with an absence of its roof. There is no prostatic or membranous portion of the urethra in this case, in fact no urethra at all.

Both testicles are normal and within the scrotum. The prostate gland seems to be absent. The seminal vesicles are not palpable. The vasa deferentia open just below the ureters on the anterior abdominal wall.

The rectum is pushed anteriorly about four cm. and opens just at the junction of the scrotum and perineum, there being an apparent lack of the perineal body. On inserting the examining finger into the rectum



one is struck by the horizontal direction of the rectum for about five cm., and the abrupt vertical direction of the continuing gut, making an angle of about ninety degrees.

The kidneys are not palpable.

**Laboratory Findings:** Catheterized specimens of urine from each ureter were normal.

**X-ray Findings:** Roentgenograms taken by Dr. F. B. Stephenson reveal that there is no symphysis pubis and that there is a space of about seven cm. between the pubic rami, as is well seen in Fig. III.

As to the exact nature of the deformity, it is evident we have to do with an arrest of development of the urethra, an exstrophy of the bladder, an absence of the symphysis pubis, an apparent absence of the accessory sexual glands—that is prostate and seminal vesicles—and a malformation of the rectum.

826 Metropolitan Building.

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## News Notes

Dr. B. A. Filmer has had his society membership transferred from El Paso County to the City and County of Denver. Dr. Filmer, when he wrote early in March, was in the service of the Federal Board for Vocational Education, Washington, D. C., and was rather expecting to remain in that service.

Dr. H. J. Temple has been appointed chief resident physician at the County Hospital to succeed Dr. L. W. Lee, who is expecting to enter private practice at Pueblo.

Dr. John C. Cornell has been appointed district supervisor at Denver of the United States Public Health Service to succeed Dr. W. C. Bennett, who has resigned.

Dr. J. W. Ames of Denver has been appointed a member of the State Board of Health to succeed Dr. A. C. McCain of Ault.

The Pollock Hospital of Rocky Ford which has been closed for the past ten months because of the illness of Dr. Pollock has been reopened and will be under the supervision of Dr. J. A. Lawson.

Dr. R. E. Wilson, formerly of Missouri, has settled in Denver for the purpose of practicing medicine in connection with the Western Clinical Group.

Dr. W. J. LeRossignol of Rifle, who in the early part of March underwent an operation in Denver for postinfluenzal complications, has rapidly recovered and again taken up his practice.

Dr. Edward I. Salisbury has recently located in Denver for the general practice of medicine, with offices at 207-208 Majestic building.

Dr. Giovanni Perilli, who arrived in this country from Italy in January, is locating in Denver for the general practice of medicine. Dr. Perilli was a medical officer in the Italian army and was twice sent to America in charge of disabled Italian boys of the American army.

Dr. Edward Delehanty of Denver has announced the removal of his offices to 233 Majestic building.

Mr. F. E. Williamson, Yosemite avenue, Manteca, Cal., having recently purchased a drug store in a Northeastern Colorado town, would like to get in touch with a physician who might care to locate in that town, there being no doctor there.

Word has been received in Denver of the death, in California, of Dr. John Lindahl, formerly an active physician in Denver and a respected member of his county and state societies.

Dr. Dare Woodruff, who located in Denver some few months ago, has recently moved to Sterling, where he will permanently establish himself in medical and surgical practice.

#### El Paso County News.

Dr. J. V. Schofield has gone to California for an extended visit.

Dr. J. F. McConnell has returned from a visit to eastern clinics.

Mrs. A. H. Peters, wife of the county physician, died here recently after a long illness.

Mrs. G. W. Bancroft, wife of Dr. G. W. Bancroft, died here recently from pneumonia.

Dr. H. R. Shands has resumed practice here after several months' visit in the South.

About forty-five doctors attended the lecture by Dr. Corvin of Pueblo given in the medical extension course.

#### American Proctologic Society Meeting.

The twenty-first annual meeting of the American Proctologic Society will be held at Memphis, April 22 and 23. In addition to the presidential address, the program includes eleven papers on subjects of proctology.



## Medical Societies

### EL PASO COUNTY.

The regular monthly meeting of the **El Paso County Medical Society** was held in the grill room of the Elks' Home Wednesday, March 17, 1920. No meeting was held in February owing to the ban placed on public meetings by the health authorities. Forty-three members and two visitors were present.

Dr. G. B. Gilmore, assistant city health officer, gave a very instructive report on the use of vaccines in influenza.

Dr. Wilson, who has recently come to this city from India, gave a most interesting talk on the practice of medicine in India.

Drs. Harry Woodward and Minnie Staines were elected to membership. Dr. D. P. Mayhew was admitted to membership by transfer from Wayne County, Mich.

The following members have recently transferred to other counties: Drs. Filmer, Moore, Wallace, Rothrock and Rohlfing.

The following resolution was read by Dr. A. C. Magruder and adopted by the society as read:

"Resolved, by the El Paso County Medical Society, that we discountenance the professional association of members of this society with any person not practicing regular medicine, whether such association be by consultation, assistance, the giving of anesthetics, referring patients by us for treatment, or in any other kind of professional association.

"Be it further resolved, that any member of this society found guilty of violating the foregoing paragraph shall be expelled from this society."

The society has received notice from the Elks' Home that it will need the rooms in the near future that are now used by the El Paso County Medical Society. The president has appointed a committee to see about a new home for the society.

C. E. RICHMOND, Secretary.

### FREMONT COUNTY.

The regular meeting of the **Fremont County Medical Society** was held March 23, 1920, in Wilson's Parlors at Cañon City, with the following members in attendance: Adkinson, Wilkinson, Orendorff, Graves, Graves, Holmes, Hinshaw, Rupert and Roberts; as guests, Graves, Brierly, Ashley, Reiter and Roberts, the last four being dentists. There were also some nurses in attendance.

Dr. Webb presented a very interesting paper on Encephalitis Lethargica, reciting a case which he now has under treatment and in which a diagnosis was made by exclusion. The paper was discussed by Drs. Holmes, Little and Orendorff.

The next paper was by Dr. H. C. Graves on The Limitations of the Laboratory in Diagnosis. Among other points there were noted that a negative Wassermann is of no significance, but a strongly positive one is of great value; that there are reliable and unreliable laboratories; in a personal experience with the insane nearly all were found to be syphilitic; that the Wassermann reaction is not of much value as a therapeutic indication; that the microscope is of value in the first and second stages, but not in the third stage of syphilis, as the spirochetes are then absent.

In typhoid a great deal may be expected of the laboratories. Gastric analysis is not of much

value in diagnosis, but is of assistance in therapeutics.

In tuberculosis the greatest value is in animal inoculations. In transfusion it is important that the blood of the donor should be homogeneous. Vaccines are only a matter of discussion. The speaker gave a hopeful outlook for pneumonia in the future through the use of properly selected vaccines. An urinalysis is important in all treatments, but should be repeated to be of value. The laboratory should be considered as only one method in connection with other conditions in diagnosis. In the discussion that followed Dr. Little could not agree that gastric analysis is of little value in diagnosis and he mentioned the importance of the laboratory in connection with treatment of the anemias. Dr. C. H. Graves considered the blood count of importance in operative cases and Dr. Rupert requested the speaker to go into more detail regarding some of the later methods of laboratory diagnosis.

Dr. S. Roberts, D.D.S., as a guest, gave a splendid lecture on "Diseased Teeth and Their Relationship to Health". He stated that of four important organisms in the mouth the most virulent is the streptococcus viridans, and recited cases showing the direct and fatal infection from diseased teeth. He also observed that the nature of focal infection is not new, as over one hundred years ago cures were found following the removal of diseased teeth and these cases are all recorded by Rush. Teeth that cannot be made safely aseptic should be removed, and when in doubt should be removed also. The x-ray is of great importance and it is the only means of making a diagnosis in some cases. The teeth should not be devitalized unless absolutely necessary. In cases recited from personal practice showing the infection from pyorrhea, one in particular was noted in which a diagnosis was made of hemiplegia, as the patient could not move either limb on one side, and in which a cure was made by surgical attention to the mouth. The paper was closed with an appeal for eternal vigilance. This paper was discussed in detail by Dr. Brierly, dental surgeon for the C. F. & I. Co., and also by Drs. Ashley, Holmes, Webb, Rupert and Little. The points emphasized in the paper and discussion were prevention and the importance of focal infection.

Under case reports Dr. R. E. Holmes showed some radiograms of a second fracture of the metatarsal bone in the exact location of a previous fracture which had taken place some five or six years ago.

OTIS ORENDORFF, Secretary.

### NORTHEAST COLORADO.

The **Northeast Colorado Medical Society** met March 11th at City Hall. Drs. Bush, Chipman, Greig, Hummel and Palmer of Sterling, and Dr. G. F. Ewing of Julesburg were present. Dr. Chipman reported three cases of empyema following lobar pneumonia and one case of empyema with pneumothorax. Discussed by all members present. Dr. J. H. Bush reported an unusual case of skin disease following influenza in a child of two years.

J. C. CHIPMAN, Reporter.

**DON'T FORGET THE PSYCHOPATHIC HOSPITAL! CARRY THE PETITION WITH YOU! ITS SUCCESS IS A TEST OF THE VALUE OF CONCERTED ACTION ON THE PART OF THE MEDICAL PROFESSION.**



# Colorado Medicine

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L. B. LOCKARD, M.D., Denver.

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## Editorial Comment

### DR. WORK PRESIDENT-ELECT OF THE A. M. A.

Dr. Hubert Work, just elected president of the A. M. A., was born in western Pennsylvania in 1860. His earlier medical studies were carried on in the medical department of the University of Michigan. He received his degree of Doctor of Medicine from the University of Pennsylvania in 1885. Coming west at once, he settled in Greeley, but soon moved to the new town of Fort Morgan. Excepting Dr. Hall, at Sterling, forty-five miles east, there were then no physicians in the section bordering the Union Pacific railway from La Salle, Colo., to the Nebraska line, a distance of one hundred and fifty miles.

In 1892 he moved to Pueblo. There he soon established the small institution which has developed into the present Woodcroft. In 1889 he had been appointed to the Colorado State Board of Health, being its president for four years. Meanwhile he had been president of the State Medical Society—the youngest man ever elected. He also served as president of his special society, the American Medico-Psychological Association.

Sixteen years ago he was made delegate from this state to the House of Delegates of the A. M. A.; and as delegate, member of the Judicial Council, or speaker of the House, he has continued in service ever since. His election as president is a well-merited recognition of his long and valuable work for the association.

During the war, when the Surgeon General's office asked the A. M. A. to recommend some physician to act as adviser to

the Provost Marshal General upon the medical questions pertaining to the draft, Dr. Work was selected by the trustees as the one best qualified for the work. He was made a Colonel in the Medical Reserve Corps upon being discharged from the service.

There are only three or four men in the A. M. A. who have contributed as much to the development and guidance of the policies and the general activities of the association as has the subject of this sketch.

While it is eminently proper that the presidency of the association should be conferred as a mark of appreciation of high scientific attainments, it is equally fitting that the association should recognize such organizing and administrative ability as Dr. Work has long demonstrated in medical affairs, and, we may well add, in state, national and political circles as well.

He will fill the position with credit.

J. N. H.

### DENVER'S PROPOSED NEW HOSPITAL.

One of the more important movements of today for the betterment of the care of the sick is the standardization of hospitals, by which is meant the setting of fixed requirements as regards, first, equipment and technicians, and, second, the qualifications of the practicing medical and surgical staffs and records of their work. The idea of hospital standardization was born with the organization in 1913 of the American College of Surgeons, being set forth at that time as one of the objects of the College. Practical work really began in 1916, when a gift of \$30,000 was made to the College by the Carnegie Corporation, New York, for hospital standardization purposes. The College having,

in the same year, secured the cooperation of the American Hospital Association, the movement developed systematically and rapidly, and is now receiving such recognition as would indicate that soon all hospitals will be judged by the minimum standard of the American College of Surgeons in much the same way as Medical Colleges are classified today according to the standard set through the investigations made by the Carnegie Foundation a few years ago.

With this situation in mind it seems fairly clear that in the future the hospitals of the United States will be divided into two main classes: those which meet the minimum standard set by the most eminent students of disease and therapy, on the one hand, and, on the other, those which are below that standard. Therefore, when a new hospital is being launched anywhere in the United States, if the organizers desire that the proposed institution shall be one of high standing and scientific value, it behooves them to see that it meets at least the minimum requirements referred to; not because these have been arbitrarily set by any certain organization, but because in this particular case the standard is the result of careful study by men most fitted to judge and who have worked unselfishly and with the interest only of the public at heart. In other words, a true standard has been worked out—not an arbitrary one.

Denver is going through the throes of the birth of a new hospital whose progenitors predict for it the highest physical, moral and scientific perfection. Large sums of money are to be collected from various donors by public solicitation and, it is said, from the parent sectarian organization by prearrangement. The medical profession of Denver has not been overlooked as a field for production of generous donations. It is claimed for the proposed new Presbyterian Hospital—and we do not question the sincerity of the claimants—that it is to be a model hospital, eventually of large proportions, complete in every modern facility for scientific diagnosis and treatment as well as research, and that the best scientific staff material will be sought and admitted, regardless of sectarian affiliation, the prime

ideal being the very best care of the sick public, for whom it should exist and whose institution it should be. Such plans naturally attracted the interest of the best of the medical profession of Denver, who undertook the labor of solicitation along with other citizens. These objects were enlarged upon at public gatherings by speakers selected by the board of managers, and with considerable zeal—such zeal, in fact (and here, alas, appears the fly in the ointment), that in his anxiety to emphasize that the hospital should not be run by any clique or “school”, one of the speakers, the chairman of the board of managers, finished an enthusiastic address with the statement that if a patient in the hospital wished to be treated by a chiropractor or osteopath he would have that privilege.

The hospital become a house of cards!

The medical profession of our country is not a “school”. It is composed of students of scientific questions involving disease and injury, their prevention and their cure. It has no special method for the treatment of all diseases, and on the other hand, it has always opened wide its arms to embrace any new discovery in treatment which was proven to have value. It numbers among its membership the men who made the Panama Canal possible; who stamped out malaria and yellow fever in the United States and the West Indies; who developed surgery to its present high level; who reduced smallpox to a comparatively harmless disease in the vaccinated; who rendered water supplies safe for drinking; who reduced typhoid in the army from 9.43 per thousand in the Spanish war to .05 per thousand in the world war (1918); who discovered remarkably accurate tests and treatment for syphilis; who made possible a 99 percent cure of diphtheria patients; and who (what is most to the point) developed hospital practice and equipment to their present level of efficiency.

The medical profession does not presume to dictate the course to be followed in the organization of this or any other institution; it simply reserves the right to extend or withhold its support according to the plane of the institution in question. In this in-



stance it beholds the anomaly of a hospital, built and equipped according to the very principles of surgery, medicine and sanitation which it has itself adduced, being utilized by Tom, Dick or Harry of any cult, by the barber who has forsaken his razor or the masseur who has given his method a new name and hailed it as a panacea—in short, by men who retard rather than advance scientific development.

Unless the publicly made statement of Chairman Briggs be retracted, it is probable that many of the Denver physicians of highest attainments will refuse either financial or professional support to the new hospital, because they do not wish their names associated with an unscientific institution and one which will become a laughingstock among their friends in other parts of the country.

Perhaps the fault is that the control of hospital practice in the new establishment does not rest in the medical advisory board, but in the board of managers, which is composed of men who are not physicians, and consequently do not realize the incongruity of the varied policies. It is known that the medical advisory board was greatly surprised at the statement, but had no authority to override it. It has not as yet been retracted, but an intimation has been given out that it was "misinterpreted" (although it was very definite), that the minimum standard\* of the American College of Surgeons would be conformed with, and that the whole matter would be smoothed out to the satisfaction of the medical profession. In that case, it seems that the only honorable course open to the board of managers is a public retraction of the statement, to clarify a clouded issue as well as to furnish a fair deal to those who may have been led to subscribe funds on the basis of a misunderstanding.

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\*The minimum standard of the American College of Surgeons will be found in Current Comment, this issue.

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**SHORT DIGESTS OF ARTICLES TO BE READ AT THE ANNUAL MEETING SHOULD BE SENT PROMPTLY TO DR. A. J. MARKLEY, CHAIRMAN, 430 METROPOLITAN BUILDING, DENVER.**

## ANTIVACCINATION AGAIN.

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"A little learning is a dangerous thing;  
Drink deep, or taste not the Pierian  
spring."

At the expense of John Shaffer, proprietor and editor (from Chicago) of the Rocky Mountain News and Denver Times, some Colorado people, for the most part worthy but misguided enthusiasts, have recently busied themselves in persuading a downtrodden public to join, without charge to the said public, a "Colorado Medical Liberty League", the real name of which should be the "Colorado League for Anti-medical License".

The animus of this league is a desire to abolish compulsory vaccination. The secretary of the league is Kent Shaffer, the anti-medical son of John Shaffer. John, who has bought up a number of newspapers for the evident purpose of influencing public opinion, is a Christian Scientist with sympathetic leanings toward osteopathy and other heresies, and an example of whose desire to "buck" the physician may be found in his recent activities toward the establishment of an osteopathic hospital in Denver. The fondness of Kent Shaffer for aliases which he used at the same time to disguise his identity and to enable him to conduct occasional controversies with himself in the News and Times was amusingly described by Dr. Bluemel on page 239 of Colorado Medicine for 1919. Kent is in favor of anything that is agin' the doctor.

The antivaccination movement is no new thing. It has flourished for at least a half century, and has been responsible for very many thousands of deaths. The latter fact is of course lost sight of by those who bolster their prejudices by constantly reciting the few fatalities from vaccination which have occurred from time to time. Several of these cases have been recently mentioned in the announcements of the Colorado Medical Liberty League; and a certain element of dishonesty on the part of the responsible officer of the league is suggested by omission to mention the years in which the quoted deaths from tetanus contamination took place. The reason for this omission is of

course that this group of tetanus infections is now ancient history, and was due to a special and isolated accident the recurrence of which is entirely improbable.

With the former practice, now almost entirely discontinued, of inoculating with lymph taken from human cases of vaccinia, it rather frequently happened that annoying ulcers developed on the vaccinated person's arm; although such ulcers rarely led to serious results. With the present use of calf lymph, and provided that reasonable surgical care is taken in and following the process of vaccination, practically no risk of complications exists.

It was probably to some extent the prejudice created by a number of cases of such ulceration among the uncleanly Canadian-French population which led to the spectacular epidemic of smallpox in Montreal in 1885. During the previous decade a large unprotected population had developed in that city and the surrounding region. A relatively mild epidemic of smallpox had existed in the United States since 1870. A case in a Pullman car conductor from Chicago was responsible in the course of nine months for the death of 3,164 persons from smallpox in Montreal.

In severe epidemics of smallpox in Europe in the nineteenth century, the death rate among those attacked was commonly from twenty-five to thirty-five percent. The antivaccination movement has only been to some extent successful because for a good many years past most epidemics of smallpox in civilized communities have been light as regards the virulence of the disease. But it is an extremely well-established fact that the mildest cases may give rise to the severest and that an apparently innocent case of varioloid may start a disastrous epidemic. It must also be remembered that cleanliness of person and the highest perfection of modern sanitation are no protection against smallpox. Almost every unvaccinated person who is definitely exposed to the disease is likely to contract it. Practically the only insanitary factor favoring the spread of smallpox is overcrowding, which obviously increases the number of persons exposed. But in our best American

cities the street car and moving picture show provide all the overcrowding necessary for the development of an epidemic.

The lead in the English antivaccination movement was taken by the city of Leicester, which has been fortunate enough to be visited only by epidemics of very moderate severity during the past half century. The city of Gloucester, England, emulated the example of Leicester, and, as an example of the adage that pride goeth before a fall, representatives of the city of Gloucester told the British Royal Commission on Vaccination late in the nineteenth century how the freedom of the city from smallpox was largely due to its cleanliness. But in 1895-1896 Gloucester was unlucky enough to be visited by a severe epidemic of smallpox. Although at that time a town of only 40,000 people, it was provided with forty-eight hospital beds available for care of smallpox cases. By the end of the epidemic this provision had been increased to no less than three hundred and eighteen beds. But this was inadequate, and Gloucester was compelled to fall back on vaccination and revaccination, and finished by becoming the best vaccinated town in the British empire. With their usual inconsistency, English antivaccinationists have since then attributed Gloucester's epidemic to insanitation.

A shining example of the value of vaccination in protection against smallpox was furnished in 1901-02 by the city of Glasgow, Scotland. After spending a great deal of money in preparation for a large international exposition, the city was threatened with a smallpox epidemic. It initiated a great vaccination crusade, and employed the whole medical profession of the city to vaccinate all who could be induced to accept this protection. The number of the population not recently revaccinated steadily diminished from 675,887 in January, 1901, to 271,032 in May, 1902; and of 1,859 cases of smallpox registered during the interval not one occurred among those who had been recently revaccinated. When another epidemic broke out in the same city after an interval of fully a year, only one of the 400,000 who had been revaccinated was attacked.



The Colorado Medical Liberty League may congratulate itself upon the fact that its power for evil is diminished by the mildness of type of the smallpox which is now more or less endemic in the United States. But let the members of the league not forget that among the Mexicans to our south smallpox occurs almost universally, and that although in Mexico the disease has for some time past been of a mild type, yet the history of smallpox clearly indicates that this fact is no guarantee against a change to the terribly severe form of the disease.

On account of the ignorance of the general public concerning medical principles, every physician should arm himself with a few leading facts concerning smallpox.

W. H. C.

## *Current Comment*

### **MAKING CALLS BY AEROPLANE.**

Our rural colleagues are getting far ahead of their city brothers in up-to-date methods of transportation. It may not be so long ago that old Dobbin was relegated to a place in a Museum of Paleontology and the flivver took his place in our affections, but for sheer progressiveness, leave it to our bucolic brethren. A practitioner of Big Springs, Neb., bearing the aristocratic name of Smith, in visiting a pathologist in Denver recounted with perfect nonchalance that his aeroplane was waiting without, guarded by an army pilot ready to carry him home via the air route. When the lab. man recovered his senses he learned to his astonishment that the supposedly backward rustic owned a stable of five automobiles in addition to the biplane in order to enable him to make his daily rounds in a territory comprising seventy-five hundred square miles on the level plains of Nebraska and eastern Colorado, and covering six counties.

Put on sackcloth and ashes, O ye Aesculapians of the city! Let there be wailing and gnashing of teeth, for yea, verily, your despised country cousin has wrested from you the mastery of the air, eke of Mammon!

P. H.

### **HOSPITAL STANDARDIZATION.**

In the proof sheets of Surgery, Gynecology and Obstetrics appears the following:

"The minimum standard of the College [American College of Surgeons] in its hospital program is now familiar to a majority of the physicians and surgeons of the continent and it is well known to practically every hospital superintendent. **Further, doctors and superintendents know that the minimum standard is their own expression as to the first essentials in the right care of patients. The time of discussion has gone by and the time of action has arrived.** Some details of this action, or of the process of standardization, may be of interest. . . . The program of the College for 1920 is, through its staff of visitors, to explain in detail to superintendents, staffs and trustees of these hospitals what the minimum standard is, what the problems are which arise in connection with it, and what the practical solutions to these problems are as determined by experience among hospitals. Further, **the visitors are to collect exact information as to the extent to which each hospital fulfills the standard.** . . . On the face of the card the visitor reports concerning staff meetings, case records and laboratory service; on the reverse side of the card, concerning the number of deaths, autopsies, facilities for pathological work. General notes are also included."

We quote further from page 436, showing that the municipal hospitals of New York City have approved of standardization:

"As the outcome of a meeting of the staffs of the hospitals under the direction of the Department of Public Charities in New York, held at the Academy of Medicine on the evening of January 23, plans were adopted for a review each month of the clinical records of these hospitals by their respective staffs. The medical profession in New York has long been aware that these hospitals maintain adequate case record systems for all patients; also that the laboratories of these hospitals are well equipped, well managed and dependable. The one thing that remained to do was to institute staff meetings at these hospitals at which clear, con-

cise reviews of what each staff had accomplished for the right care of its patients each month should be fearlessly considered. These staffs agreed unanimously that the time had come for such meetings, and they therefore carried the plan through."

For the benefit of those who are still unfamiliar with the "minimum standard", it is quoted below, together with certain comments upon it by Mr. John H. Bowman, director of the American College of Surgeons. (From *The Modern Hospital*, December, 1919):

#### "THE MINIMUM STANDARD.

"1. That physicians and surgeons privileged to practice in the hospital be organized as a definite group or staff.

"2. That membership upon the staff be restricted to physicians and surgeons who are (a) competent in their respective fields, and (b) worthy in character and in matters of professional ethics.

"3. That the staff hold meetings at least once each month to review and analyze the successes and failures in the treatment of patients.

"4. That accurate and complete case records be written for all patients and filed in an accessible manner in the hospital.

"5. That clinical laboratory facilities be available for the study, diagnosis and treatment of patients.

"The primary purpose of nearly all hospitals is the care of the sick or injured. This means that, as a matter of policy, the hospital seeks to render to each patient admitted the most efficient care known to the staff of the hospital. Hospitals and doctors accept this interpretation; otherwise the hospital would be merely a boarding house for the sick or injured. Further, the trustees of the hospital, having accepted this policy, are responsible for the administration of the policy; and the people of the community have a right not only to assurance that the policy is carried out, but also to the facts upon which such assurance is based. It is only upon such a relationship of mutual confidence that the hospital may reasonably ask the good will and support of the community.

"If the board of trustees is responsible that every patient, free or pay, in the hospi-

tal receives the best care known to the staff, then the board must at frequent intervals be in possession of the facts as to the care received by the patients in the hospital. The board must know, for example, if any unnecessary surgical operations are performed in the hospital; or if incompetent surgical operations are performed; or if lax, lazy or incomplete diagnoses are made. If infections occur, the board must know, as nearly as may be, the cause of the infection, and it must know that every reasonable effort is made to remedy the cause. If the time of patients is wasted between their admission to the hospital and the proper study, diagnosis and treatment of their illness, again the board must know the facts and take action promptly to prevent further waste of this kind. Too frequently hospital trustees consider that their duties end with the management of the financial affairs of the hospital."

The standard is stated more in detail on page 484 of the same journal.

The statement in an editorial in this issue of **Colorado Medicine** to the effect that this standard will be the future measure of hospital efficiency in the United States, thus appears to be substantiated.

#### **MEDICAL TRAINING IN THE AMERICAS COMPARED.**

Suggestions for improvement of the status of the specialties were made editorially in our April issue. In that connection some interesting information has come to hand regarding the training required of surgical specialists in the South American countries. The American College of Surgeons, in its desire to become comprehensively American, and eventually include in its fellowship all worthy surgeons of the American continents, caused an official visit of investigation to be made to Peru, Chile, Argentine and Uruguay, very entertaining accounts of which are appearing in *Surgery, Gynecology and Obstetrics*. Dr. William J. Mayo, one of the visitors, says:

"Their medical schools are splendid institutions with a seven-year course, and are the equal in equipment and methods of theoretic teaching of any in the world. In South America 'Commencement Day' means just that, for after graduation



the young surgeon begins a special course of surgical training. Instead of carving his way to knowledge and experience by the scalpel, he is tutored for a period of from eight to ten years along lines which we of the United States have accepted only recently under the general term of fellowships in graduate medicine and surgery."

Compare with that the following statement in the State Board number of the Journal of the American Medical Association (April 17, 1920):

"Colorado is now the only state which will knowingly admit nongraduates to its examinations, but only six have been licensed in that state in fourteen years, two having been so licensed this year. The door has been closed, therefore, against the admission to practice of those whose medical training is known to be incomplete. At present, however, some boards are registering as physicians and surgeons, by examination or by reciprocity, graduates of osteopathic colleges—no one of which compares favorably with the lowest grade Class C medical college—even though in two of these states—Colorado and Texas—the boards refuse to admit graduates of Class C medical schools to their examinations."

Shall it be said in further reports that these same undereducated licensees are practicing in Colorado's largest hospital?

### PSYCHOPATHIC HOSPITAL PETITIONS.

Petitions have been coming in satisfactorily from doctors over the state, according to Dr. Moleen's statement. Some two hundred were put out among the lawyers through Judge Rothgerber's efforts, and it is understood that they are working hard on them. The doctors should not allow themselves to be outdone in work expended on a measure which they are fathering. Please redouble your efforts and also remember to try to convert every signer into a voter for the measure. Send your petition in by June 20.

### PAPERS FOR THE STATE MEETING.

You are urgently requested to send promptly to Dr. A. J. Markley, chairman of the Scientific Committee, Metropolitan Building, Denver, a short digest of any scientific article you wish to read at the annual meeting in Glenwood Springs this coming September. Please forward the title, at least, right away and send the digest as promptly as you can.

## Original Articles

### GASTROSTOMY FOR LARYNGEAL TUBERCULOSIS.\*

CHAS. J. LOWEN, M.D., Denver.

This is a report of a gastrostomy performed to relieve the distressing symptoms of a case of laryngeal tuberculosis.

After the young lady in the library had gone through all her available material for several years back, she was unable to find anything applying to this subject, and in talking to a number of men interested in tuberculosis, no one had observed a case of laryngeal tuberculosis in which a gastrostomy had been performed, although one man mentioned that he has often felt it might be of service. No doubt it has been practiced in isolated instances, but the average man thinks only of gastrostomy as it pertains to diseases of the esophagus either as a palliative or permanent measure.

Arrowsmith in an article entitled "Present Day Aspects of Laryngeal Tuberculosis", says most throat men, with a few notable exceptions, agree that local operative procedure for its cure is of little if any value, inasmuch as it is invariably a secondary process to tuberculosis elsewhere, and that cleanliness and building up of resistance plays the most important rôle. As palliative operative procedure he speaks of pharyngotomy and tracheotomy as being at times permissible and cites a case of his own in which he found it necessary to do a tracheotomy with multiple incisions of the arytenoids for dysphagia and dyspnea. His patient died five days later. This was a case of hypertrophic laryngeal tuberculosis, first described by Thiesen in 1903 in the Journal of the A. M. A., and is a very striking parallel to the case about to be presented to you, as far as symptoms are concerned.

No doubt the value of gastrostomy in laryngeal tuberculosis must be principally palliative, as the patient whose subjective symptoms are such as to suggest it has so much pathology elsewhere that a cure is not to be expected. Yet, occasionally, there

\*Read before the Medical Society of the City and County of Denver, April 6, 1920.

should be a case in which one might anticipate curative results, for the procedure gives to the affected parts the cardinal requisites in the treatment of tuberculosis anywhere, namely, physiological rest with a corresponding reduction of toxemia; secondly and most important, it permits of sufficient nourishment without its attendant pain and exhaustion when food is attempted by mouth; and thirdly, it reduces coughing and its sequel vomiting to a minimum.

Now what danger does a patient submit himself to with a gastrostomy? To my mind, very little, compared with the relief to be expected. To one familiar with the use of local anesthesia the procedure should be simple. The great risk lies in general anesthesia, for shock from operative manipulation is quite negligible. This type of patient should make an ideal subject for local anesthesia, as he is usually so miserable that relief in any form is most acceptable.

I shall now submit a case in which a gastrostomy was performed as a palliative measure:

Miss C., a school teacher, aged thirty-three years, with a pronounced family history of tuberculosis, came under my observation last July, with a marked pulmonary and laryngeal tuberculosis. Three members of her family had died of this disease; one, a sister, having died under my care about four years ago. The course in all was about the same, and, although the condition of each was discovered early and the best of care given, none seemed to have the necessary resistance to respond. This young woman said she had no symptoms until eight months before I saw her, when she began to break down, and after being observed by her family physician in Chicago for a short time was advised to go west for her health. She spent six months in a sanitarium in New Mexico, during which time her throat became involved and a steady loss of strength and weight ensued. Aside from the family history and the fact that she was never very strong, the rest of her history was negative. Physical examination disclosed a tall, thin, long-chested, anemic brunette. She could talk only in a harsh whisper and complained bitterly of pain in her throat, hunger and

thirst, especially the latter. The only way food or liquid could be taken was by the patient lying crosswise on the bed and letting her head hang over the side about six inches lower than her trunk. Then with great difficulty a glass of milk or a part thereof could be consumed in the course of about a half hour, when either from exhaustion or a fit of coughing it had to be discontinued. Anything taken in any other position immediately provoked a most violent paroxysm of coughing which might last easily ten minutes. It can readily be seen how little nourishment was obtained under these conditions. To add to this already unhappy state there was a marked dyspnea due to laryngeal stenosis. It sounded as though she had spasmodic croup, and a more distressing condition would be hard to imagine.

Her throat was examined by Dr. C. E. Cooper, who reported a marked laryngeal hypertrophy. The chest showed involvement on both sides, with beginning cavitation at the top of the left lung. The pulse was moderate in rate and of surprisingly good quality. The rest of the examination revealed nothing of importance.

Inasmuch as her whole suffering was caused by the laryngeal condition, the relief of it naturally first suggested itself. The laryngologist thought a tracheotomy would have to be considered, but agreed with me that it would only take care of the dyspnea, so that our feeding problem would still be unsolved. It was then that a gastrostomy suggested itself, and on presenting all the facts for and against it to the patient and her people, she willingly consented. So on July 29th of last year a gastrostomy by the Stamm-Kader method was performed under local anesthesia, the patient having received one-half hour before operation a No. 2 tablet of H. M. C. hypodermatically. At first she seemed a little apprehensive, but later went to sleep, so that when the operation was finished she had to be aroused and asked if she felt all right, which she answered in the affirmative.

The aforementioned method is conceded to be by far the best, inasmuch as it is practically leak-proof, which is more than can



be said of many of the other methods. This has been my experience with the two gastrostomies which I have already performed by the method, and a few more which I have been able to observe.

For forty-eight hours rectal alimentation was practiced, after which time the nurse was instructed to give feedings at two-hour intervals, according to a schedule devised by Dr. Julius Mortimer.

If the patient's gratitude was any criterion, then the operation did all that could be expected. She immediately became stronger and better nourished, the cough improved and the dyspnea gradually disappeared. Her mental attitude changed from one of despair to one of contentment. This continued for about three months, when her throat became worse, and coincidentally her lungs, so that in about two months more she died. Aside from the discomfort or suffering of any case of pulmonary tuberculosis there was no time in which she complained of any of the symptoms caused by her throat, such as hunger or thirst, which were the dominant symptoms before the operation. She was always most emphatic in her opinion as to what a comfort the gastric fistula had been to her.

In conclusion, I would say that in most cases this procedure is entirely unnecessary, yet I should like to believe that in properly selected patients practical results would in time show a wider field of application, both curative and palliative. The objection that might be raised in having to close the fistula when it may be no longer needed does not exist, for with the method just described it will close of its own accord in a week's time on removal of the feeding tube.

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### A CASE OF CONGENITAL WORD-BLINDNESS.

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C. S. BLUEMEL, M.A., M.D., Denver.

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Acquired word-blindness is a mental defect in which the afflicted person has forgotten how to read. The patient sees the words before him as clearly as we see the words on this printed page, but the words convey no more meaning than they would

if they were upside down or were printed in a foreign language.

Word-blindness results from a brain injury involving the angular gyrus. In right-handed persons the injury is to the left side of the brain, in left-handed persons the injury is to the right side of the brain.

More curious still than acquired word-blindness is congenital word-blindness, a defect that renders intelligent children incapable of learning to read. Such children can often learn their letters, and may learn to read short words, but real reading and writing is beyond them. Despite their difficulty with reading, they may have no trouble with figures, and their arithmetic may be quite accurate.

Congenital word-blindness is thus somewhat of a curiosity, and it exemplifies one of the most amazing twists that beset the human mind.

English, French and German medical literature has recorded only seventy cases of congenital word-blindness during the twenty-four years in which this condition has been recognized. The defect is probably more common than this paucity of literature would imply, for Dr. C. J. Thomas estimates that one child in two thousand in the London elementary schools is word-blind to a considerable extent (The Ophthalmoscope, August, 1905). The condition is three times as common in boys as in girls.

The patient whose case I wish to record is a boy of ten. He is well developed, and is bright and alert. A Binet test shows his mental age to be nine years. His general intelligence is thus practically normal, but at the same time he seems to be peculiar in some respects, and it is stated that at school he is abusive toward other children, and he has at times been observed talking to himself. When brought to the office for medical examination the boy is obviously fearful, and he cries and trembles when an ophthalmoscope is produced, and permits an ophthalmoscopic examination of the eye-grounds only after much pacifying and persuading. He is terrified at the appearance of an x-ray machine, and a full half hour of coaxing and coercing is required before he will lie on the table to have his head x-rayed.

But aside from these points there is nothing noteworthy in the boy's manner or conduct, and he gives one the impression of being an average boy of average intelligence.

He is greatly handicapped in his school work on account of his inability to read and write. He has made the third grade on his general knowledge, but is unable to do first-grade reading.

When asked to read, it is observed that he does so slowly and with much perplexity. Here and there he reads a few short words correctly; a few of the words he mis-reads; but the majority of words he does not attempt. As a rule he cannot read enough words in a passage to piece a single sentence together.

He was tested on the following typewritten sentences, and he read only the words printed in heavy type: "**The cat caught a rat.**" "**Two and two make four.**" "**I am ten years of age.**" He made no attempt to read the words **caught, ten, years** and **age**. He mis-read the word **rat** as **sleep, make** as **in**, and **am** as **an**.

He was then given the following typewritten passage to read:

**The sea! the sea! the open sea!**

**The blue, the fresh, the ever free!**

In this passage he read only the **the's**, and did not attempt the other words. When the first word **sea** was read to him, he read the other **seas** correctly.

He was then given the following verse to read:

**I had a hat. It was not all a hat—**

**Part of the brim was gone;**

**Yet still I wore it on.**

The words that he read correctly are

given here in heavy type. He made no attempt to read the words **hat, all, part, brim, gone, still** and **wore**. He recognized the second word **hat** as identical with the first, but was unable to read it. He mis-read the word **had** as **just, not** as **knowed, was** (in the second line) as **would**, and **yet** as **that**.

He was also tested on the following rhyme:

Mary had a little lamb,

Its fleece was white as snow;

And everywhere that Mary went,

The lamb was sure to go.

The heavy type shows the words read correctly. He mis-read the word **Mary** as **there**; **had** as **have**; **lamb** as **hat**; **as** as **is**; and **go** as **on**. He made no attempt to read the words **fleece, white, snow, everywhere, that, went, lamb** (in the last line), and **sure**.

When the word **Mary** occurred the second time he identified it with the first **Mary**, but was unable to read it. When the word **was** occurred, he turned to the typewritten paper from which we had been reading the verse "I had a hat, it was not all a hat." He recited this verse aloud and pointed off the words till he came to **was**, and in this manner he contrived to read the word. He went through the identical procedure when **was** occurred the second time. (Reading had been slow and laborious and some little time had elapsed between the first **was** and the second **was**.)

The boy was then examined as to his ability to write. He was tested with the same verse, "Mary had a little lamb", since he had failed to identify it in reading. One word was dictated to him at a time. The result appears below (Figure 1). It should

Mary had a little  
it's. fece was that hal  
sof and fece het Mary wat  
the lear was sker togo

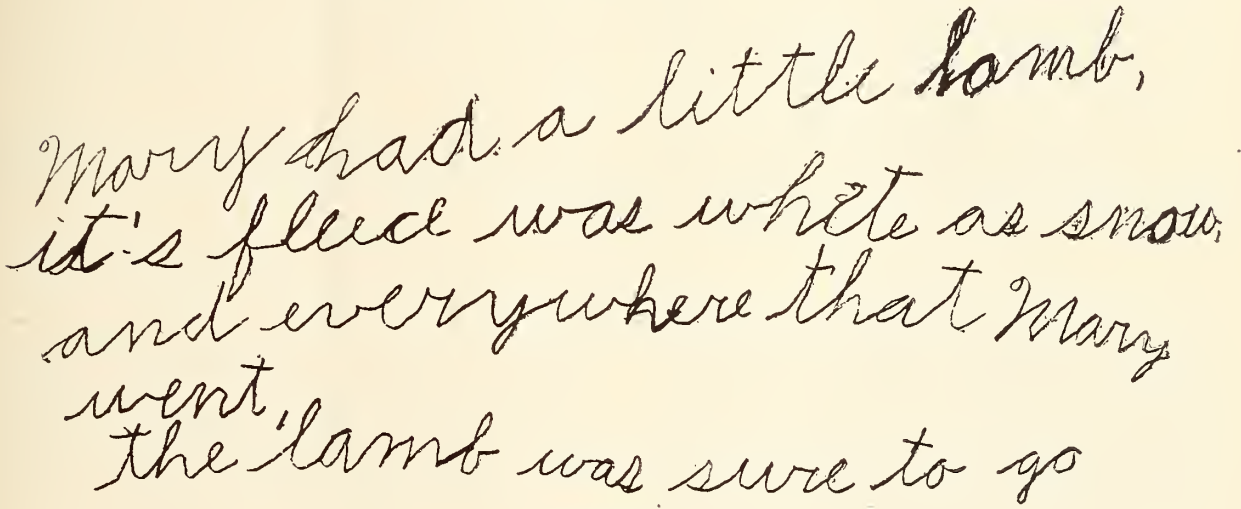
Figure 1.



be particularly noted that he wrote the word **Mary** correctly, though he had failed to read this word a few minutes previously.

Following this experiment, he was given the typewritten verse to copy in script. The result appears below (Figure 2).

prising, for he spelled many of the words correctly. The words spelled correctly were as follows: **Mary, had, a little, lamb, its, was, and, that, Mary, lamb, was, to.** He spelled **fleece** as **feece**; **white** as **white**; as **had**; **where** as **was**; **went** as **was**. He



Mary had a little lamb,  
 it's fleece was white as snow,  
 and everywhere that Mary  
 went,  
 the lamb was sure to go

Figure 2.

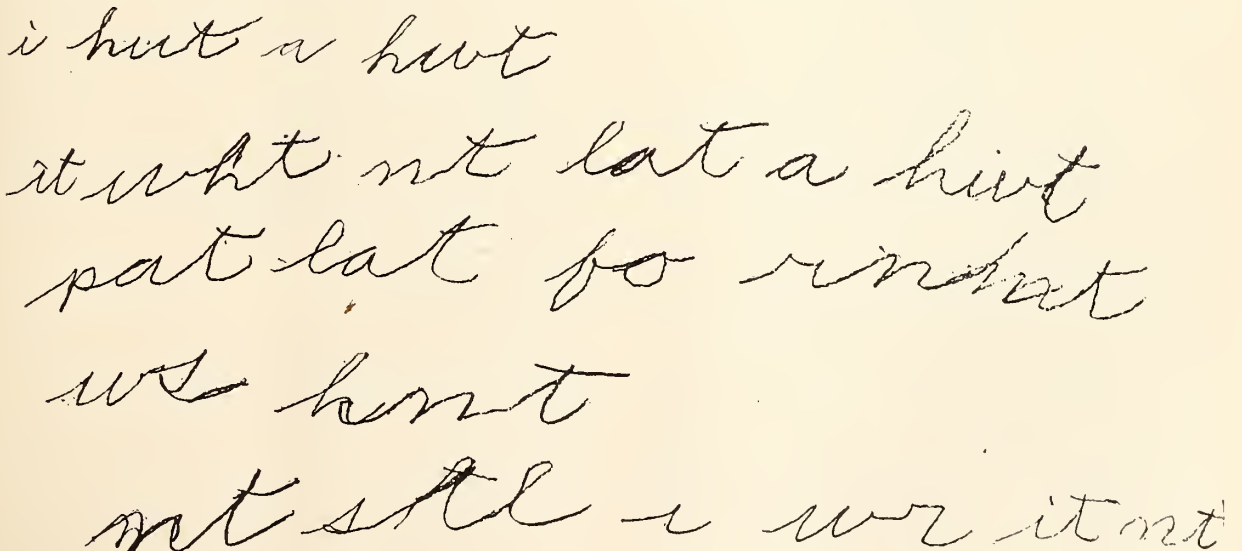
He was then asked to read the typewritten passage again. His reading was evidently an attempt to recite the words from memory, for he gave the verse as follows:

Mary had a little lamb,  
 Its face was white as snow,  
 And every place Mary went  
 The lamb was bound to go.

He was then asked to spell the words of the verse aloud, each word being given to him separately. The result was quite sur-

made no attempt to spell the words **snow, every, the** and **sure**. It will be noticed that the spelling deteriorated as the task progressed.

When the boy was seen again a few days later he was asked to write the verse "I had a hat", etc., from dictation. He had not practiced reading or writing this passage in the meantime. As before, the words were dictated to him one at a time. The result appears below (Figure 3).



i had a hat  
 it wnt nt lat a hnt  
 pat lat so rnt  
 we hnt  
 nt stl - wr it nt

Figure 3.

*i had a hat it was not  
all a hat.-  
part of the frame was  
gone; i  
yet still i wore it on.*

Figure 4.

Figure 4 shows his writing when copying with the typewritten verse before him.

Despite the boy's word-blindness, he has no figure-blindness, and he does simple arithmetic accurately and fairly rapidly. He performed the following addition promptly, correctly and without assistance:

36582  
13417  
21348  
42129  
74835

---

188311

The following subtraction was also done without difficulty:

274839  
182174

---

92665

There is no difficulty with individual letters; these he reads and writes accurately. Occasionally when attempting to write words from dictation he will pause a moment and ask how to form a *v* or a *y*, but he forms all the individual letters without assistance when given time to reflect.

There is no object-blindness, and he recognizes and uses different objects that are placed before him, such as a pen, a pencil, a blotter, a ruler, a paper clip, etc. There is no defect of the primary visual memory for objects, and after one glance at a table he is able to close his eyes and name the different things on the table and give their

relative positions. There is no defect of the secondary visual memory (the after-memory), and he draws fairly accurately things that he has not just recently seen, such as a bicycle, a kite and a house.

The visual defect is therefore limited to word-blindness or inability to recognize printed or written words, together with visual verbal amnesia, or inability to recall the visual images of printed or written words in the mind. Inability to recall the memory images of written words naturally renders the boy unable to write.

There is no defect of the auditory memory, and the child understands clearly what is said to him, and he speaks fluently and with no difficulty in recalling words. He is able to learn and recite passages by heart.

The neurological examination is negative except that a coarse tremor of the arms was present when the boy cried in his fear of an ophthalmoscope. The tremor was more marked in the right arm than in the left, and in the right arm it resembled a slight clonic spasm. The general physical examination is negative except that the teeth are slightly pegged.

In regard to the past history, the boy is stated to have had scarlet fever with otitis media and mastoiditis at four and a half years of age. A mastoid operation was performed. A year later he was knocked down by an automobile and was unconscious for twenty-four hours, apparently from concussion of the brain. There was no definite evidence of fracture of the skull, and x-ray



pictures of the skull made at the present time by Drs. Wade and Stephenson are negative.

The Wassermann test on the blood is negative with alcoholic antigens, but gives a faintly positive reaction with cholesterinized antigens (approximately seventy-five percent hemolysis). The Wassermann reaction on the mother's blood is strongly positive with both antigens.

The case recorded above is typically one of congenital word-blindness. I believe that the mother's positive Wassermann reaction may be significant. In reading the literature on congenital word-blindness I have been impressed with the frequency of tremors, ataxia and various abnormal conditions consistent with congenital syphilis, and with the frequency of positive Wassermanns in the few cases in which the patient's blood has been examined. These findings suggest that congenital syphilis may be the cause of congenital word-blindness, and I believe it would be well to make a test of the mother's blood in routine examination of these cases until we have determined what part syphilis plays in this remarkable condition.

900 Metropolitan Building.

### A CASE OF DOUBLE OPTIC NEURITIS ASSOCIATED WITH DENTAL AND NASAL FOCAL INFECTION.\*†

GEORGE F. LIBBY, M.D., Oph.D., Denver.

A woman of about forty was referred on September 10, 1918, by Dr. T. J. Gallaher, for an opinion as to the bearing of a deflected nasal septum, with pressure contact, on an existing toxic optic neuritis. The patient stated that in the previous May sudden loss of vision had occurred in both eyes; the sight quickly returning in the right eye, while the vision in the left remained impaired. Dr. J. R. Arneill found no abnormality of blood, kidneys or other organs. After two months the vision of each eye was normal. Then an attack of rhinitis caused

the sight to drop nearly to the low point reached in the first attack. With subsidence of the rhinitis, vision again became normal. Soon after this a devitalized tooth, with the burr of a dental instrument in it, was extracted upon Dr. E. R. Warner's and Dr. Melville Black's advice, and streptococcus viridans was found in culture. X-ray pictures by Dr. I. C. Brownlie of this and seven other devitalized teeth had shown no suspicion of alveolar blind abscess, and yet Dr. Brownlie believed all the dead teeth should be extracted as a measure of safety, and to eliminate them as a possible focus of infection.

Ophthalmic examination by the writer on September 10th showed obscure disc margins, with the nerve heads hyperemic and slightly swollen; the vision of the right eye being 5/5 mostly, that of the left being 5/5 partly. At a conference in which Dr. Warner participated a corrective operation on the septum was deemed advisable. Dr. Gallaher did a submucous resection, straightening the septum, on the following day.

October 4th showed the disc margins sharper and the hyperemia gone, with vision of 5/3 mostly in each eye, although asthenopia (but not a previously noted scotoma) still persisted.

On the 19th of October the seven devitalized teeth were extracted, two showing streptococcus viridans.

By December 6th the nerve heads were normal, although like those of her son and mother, not as well defined as the average discs, and the vision still held at 5/3 mostly, with good reading ability for close work.

On February 10, 1919, the vision of the left eye fell suddenly to 5/10, and it remained so for eight days, although a coincident intestinal indigestion was relieved meanwhile. The patient was then examined by Dr. Gallaher, who reported that day: "Hyperplastic ethmoiditis, with slight empyema of the left sphenoid", and two days later, "did complete exenteration of the anterior and posterior ethmoidal cells, cutting down the anterior wall of the left sphenoid, and leaving permanent, perfect drainage." By March 3rd the vision of the left eye was 5/4 partly, and 5/4 fully on April 16th.

There were no visible changes in the optic

\*Read at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1919.

†Reported to Colorado Ophthalmological Society, December, 1918. See American Journal of Ophthalmology, February, 1919, page 155.

disc during this relapse, but toxic irritation of the nerve trunk seems a reasonable explanation of the lowered vision.

When the patient was last seen, August 31, 1919, the recovery was still complete, not only from the optic neuritis, but also from a serious condition of nervous apprehension and discouragement.

To summarize the striking and suggestive points, we note (1) the association of rhinitis with the second attack of optic neuritis, and their coincident subsidence; (2) the relief of the third attack by straightening the nasal septum, thus removing pressure on the middle turbinal of the then affected side; (3) relief of a persisting asthenopia which followed the extraction of devitalized teeth, two of which had streptococcic apical infection; (4) final relief by complete exenteration of the ethmoidal cells, with drainage of the sphenoid, and (5) an hereditary anomaly of the optic discs. It seems fair to consider the focal infection a double-barreled affair.

The writer of this clinical note was pleased to observe the insistence on the part of the dental surgeon that the question of a nasal focus of infection should be determined before fine-looking, useful teeth (uncondemned by roentgenograms) should be extracted; and also the ready willingness of the rhinologist to await the result of the removal of alveolar foci of infection before entering long-suspected nasal accessory cavities. The ophthalmologist mainly looked on, and learned the ever-valuable lesson of the importance of cooperation.

219 Majestic Building.

### DISCUSSION.

**T. J. Gallaher, Denver:** I wish to compliment Dr. Libby upon his splendid and comprehensive paper. This case involved the cooperation of the oculist, rhinologist, dentist, roentgenologist and hematologist. It opens up the entire subject of focal infection. It is unwise to establish a precedent of at once attacking the nose, unless demonstrable pathological conditions are present. The source, or sources, of infection may exist in the nose, mouth, throat, gastrointestinal tract, in the pelvis in women and the prostate gland in men. I have found records of twelve cases of retrobulbar neuritis which were apparently caused by gastrointestinal intoxication and in which proper treatment of the tract resulted in absolute cure. We are at present too ready to ascribe the cause to nasal origin alone. Dr. E. R. Warner, aided by the dental roentgenograms of Dr. I. C. Brownlie, removed all infected teeth and made a most excellent reconstruction of the mouth. There is

no doubt that this patient had several sources of infection. I first performed an extensive sub-mucous resection of the nasal septum. This was followed by immediate improvement in vision. The diseased teeth were then extracted, after which vision diminished. I at once made a complete exenteration of the hyperplastic anterior and posterior ethmoidal cells and cut down the face of the sphenoid sinus. The vision was restored to normal within a week and has remained so.

As to the extraction of devitalized teeth, I believe that the general condition of the patient, age, and the time during which the dead tooth has remained in the mouth will be the deciding factors.

The tonsils should be given much more than a cursory examination. This should be done by means of pillar retractors, so that the crypts can be properly expressed. Badly infected tonsils seldom become normal again. Infection of the lingual tonsil must not be overlooked.

**E. R. Warner, Denver:** The case reported by Dr. Libby is of such magnitude that it is worthy of a careful study and consideration. It embodies much that is today uppermost in the minds of the medical and dental professions as to foci of infection and the grave effects upon adjacent or remote parts of the body.

It demonstrates the advisability of caution and yet the need of radical procedure in accomplishing the desired results. The sacrifice of teeth is a thing that too frequently is resorted to without a reasonable study of the case or a history of the dental side of the question. On the other hand, it is not infrequently the case that diseased teeth are retained through prejudice and lack of appreciation of the importance of the teeth as foci of infection in the advanced and dangerous general and local cases.

This particular case was one demanding energetic measures. The patient was apprehensive of the possible permanent loss of vision and willing to resort to almost any procedure to effect a cure. Reluctant to lose several of her teeth, she abided by the decision when it was apparent that her infection was not a single one but one resulting from contributing factors.

The radiographic definition was not sufficiently positive to indicate which teeth were absolutely responsible, if any. The laboratory test is one of the deciding factors and that means extraction of the teeth before determination.

In this case three teeth out of eight gave streptococcal apical growth, three of them staphylococcal growth and two no growth at all. Some of these roots had been filled upwards of twenty years and these were the ones showing the streptococcal growth.

Emphasis must be placed upon the association of pyorrhea with a general infection. The patient had not an advanced pyorrhea but a decided tendency to bleeding gums. She had at this earlier time a modified Vincent's angina which yielded readily to local treatment. Coincidentally with the later attack of intestinal indigestion referred to by Dr. Libby her gums assumed a state of congestion, but on correction of the intestinal trouble resumed the normal.

Dr. Libby's summary of the striking and suggestive points is quite in keeping with my own observation in the case and the conclusion that if justice be done to the patient snapshot judgment should not be taken to the extent of a hasty extraction of teeth with the possible error of diagnosis and a subsequently impaired dental mechanism, with its possible future dangers of pyorrhea



resulting from malocclusion, and imperfect digestion, with its disastrous results.

It is my opinion that in a multitude of these cases where the teeth are suspected of being the one and major source of infection a careful investigation reveals them as associative factors contributing to general or localized lesions elsewhere in the body, and that when the body resistance thereby is lowered the infection becomes manifest and the elimination of any or a part of these sources restores the physical balance and improvement is noticeable whether it be permanent or temporary.

It is certainly fair to infer that cooperation is most essential in avoiding a wrong diagnosis and consequent faulty treatment of the case in hand.

**Dr. Libby (closing):** I have nothing to say, Mr. President, in closing, except that I feel thankful to the gentlemen who have been kind enough to discuss my paper. They have covered the ground most fully, and in the treatment of the case I feel the credit is due largely to them.

### ILEUS.\*

**JULIUS L. MORTIMER, M.D., Denver.**

Ileus is one of the most dreaded maladies known. It represents an illness of extreme suffering, usually terminating fatally, unless there is surgical intervention.

The term ileus signifies a symptom complex, that gives no clue as to the cause. Whereas it was formerly recognized mainly by fecal vomiting, our modern conception of ileus requires that it be dealt with from a clinical and not from an anatomical standpoint. The foremost symptoms that have always been observed are cessation of stool and gas, vomiting of intestinal contents, abdominal distension and pain. Cessation of stool and wind are undoubtedly the most important symptoms, for some of the other accompanying signs may occur without intestinal obstruction. Vomiting of feces may occur when a fistula exists between the stomach and colon. Furthermore, vomiting may be absent in intestinal obstruction; also abdominal distention and pain may not make an early appearance.

We therefore concede that the so-called cardinal symptoms are not always present at the onset of the ileus, but may appear only after several days when the condition is fully developed.

The types of ileus may be classified from various standpoints. The above mentioned cardinal symptoms characterize mainly the

acute complete ileus. In incomplete ileus the lumen of the intestine does not close entirely and fecal vomiting may or may not occur; however, evacuation of the bowel contents and gas may be brought about by the use of certain measures, but not in a normal manner. Our conception of ileus is that of an acute malady unless otherwise stated; therefore, the term ileus should be reserved for the complete form. One generally hears of a chronic ileus when the condition develops, not acutely, but gradually. Chronic ileus is an incomplete obstruction that may, however, become complete during the further course of the illness. On the other hand, an acute complete ileus may change to an incomplete chronic form. Then again ileus may be classified according to the site of involvement: high type (duodenal, arterio-mesenteric, upper portion of the small intestines); middle type (lower portion of the small intestines, proximal colon); and low type (distal colon and rectum).

A most satisfactory classification is the etiological one. One that has existed for many years divides the etiology into two main groups, the dynamic and the mechanical (occlusion) ileus, with a further subdivision of the first group into the paralytic and the spastic types. In the paralytic type there is an absence of motor power to drive the ingesta onward and there is no mechanical hindrance, whereas in the spastic ileus a hindrance for the intestinal contents does exist, resulting in a closure of the intestines. This form really belongs to the mechanical or occlusion ileus. There remain two distinct groups, the paralytic and the mechanical ileus, with or without disturbance of nutrition of the intestines.

The following classification will be considered:

#### Paralytic Ileus:

##### A. Without disturbance of nutrition.

1. Peritonitis and peritoneal irritation; postoperative ileus.
2. Neurosis (hysteria); spinal cord lesion.
3. Reflex intestinal paralysis.
4. Light contusions.
5. Paralysis caused by overdistention.

##### B. With disturbance of nutrition.

\*Read at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1919.

1. Embolus.
2. Thrombosis of the mesenteric arteries.
3. Severe contusions.

Mechanical Ileus (Occlusion):

- A. Without disturbance of nutrition.
  1. Foreign bodies.
  2. Spasm.
  3. Stricture (cicatrix, tumors).
  4. Compression from without (tumors, membranes).
  5. Kinking, adhesions (strands, abscess).
  6. Twisting or looping of the intestines.
- B. With disturbance of nutrition (strangulations):
  1. Incarcerations. (a) internal; (b) external; (c) retrograde.
  2. Volvulus.
  3. Intussusception.
- C. Transition form.
- D. Combination ileus.

With every one of these etiological forms there is to be differentiated an acute or chronic, a complete or incomplete form, a high, middle or low site. All possible transitions between any of the etiological forms of ileus may be encountered. The end stage of most forms of mechanical ileus that results in death is intestinal paralysis.

We shall first consider paralytic ileus. The paralysis may involve a circumscribed area or may stretch over a considerable distance. At least ten centimeters of intestine must be involved before there can be a complete cessation of intestinal motility. If, however, great sections of intestine are involved we are dealing with a thrombosis or embolus of one of the larger mesenteric arteries; but even here some time may elapse before there is a resulting ileus. Extensive involvement also occurs in peritonitic paralysis; the latter is mainly based upon an infection rather than upon a mechanical or reflex injury.

In the later stages of mechanical ileus, intestinal paralysis plays an important rôle. The musculature that lies proximal to the obstruction becomes paralyzed after strenuous but unsuccessful efforts to overcome the obstacle. In other cases it is the resulting

peritonitis that leads to intestinal paralysis; this applies to those cases associated with disturbances of nutrition; it results in the clinical picture being changed from the obstructive to the paralytic type. If the obstacle has been present for some time, we find that the segment of intestine above the obstruction becomes distended and the musculature shows hypertrophy, then with a sudden complete closure the musculature contracts more violently than if the intestines were suddenly blocked.

The increased motor function of the intestines manifests itself in three extreme forms: Rigidity (Nothnagel), increased peristalsis and the diffuse visible intestinal contour. In intestinal rigidity or stiffening, there appears spontaneously, on tapping, a state of contraction of the segment proximal to the obstruction. It becomes visible and palpable without showing any forward peristaltic waves. An audible intestinal rumbling and a colic-like pain accompany the condition. In the second form one observes from time to time a forward peristaltic wave up to the point of obstruction. The segment of intestines involved may vary in length, generally it does not exceed twenty cm. and is found in those cases in which the obstruction has developed gradually, thereby allowing the musculature to hypertrophy.

In the third form there is an involvement of a large mass of intestinal coils that are visible through the abdominal wall. The coils generally are placed parallel to one another, but occasionally present an irregular appearance. This form is found in the acute type of obstruction. A strangulated coil of intestines shows severe disturbance of nutrition whether or not the mesentery is involved, terminating sooner or later in gangrene. Distension of the coil and paralysis of the musculature take place rapidly. The inflated segment has a tendency to approach the anterior abdominal wall (Wahl) unless it is fixed elsewhere. This sign is an important accompaniment of strangulation. It appears spontaneously; there is tenderness on percussion, and a highly tympanitic note often changes to a metallic sound; on auscultation a ringing, gurgling sound is heard.



The sign disappears when general meteorism becomes established.

The disturbed nutrition of the intestinal coil leads to brown, then black discoloration, to necrosis. Long before this, the intestinal wall becomes permeable for bacteria contained in its lumen, there occurs a sweating of bloody serum which pours into the abdominal cavity, and peritonitis develops rapidly.

**Diagnosis:** Special diagnostic methods are not to be considered in ileus. After a carefully obtained anamnesis, inquiry being made whether the patient has undergone a previous operation, the abdomen is inspected for local or general distension, distension over one or both flanks, visible peristalsis, abdominal scars. Then by palpation one observes the presence of rigidity or tumor masses and whether peristalsis sets in. Percussion and auscultation are also utilized. The upper and lower borders of the liver are determined, also the lower borders of the lungs and the cardiac area. All possible hernial sites, even the rarest, are searched. Rectal palpation must not be omitted. If the condition permits, a proctoscope should be introduced; this may reveal a high-seated tumor of the rectum or a deep-seated carcinoma of the sigmoid flexure.

The various processes that result in ileus involve each part of the intestines with various frequency; that is, there are sites of predilection. Carcinoma generally chooses the large intestine, most frequently the rectum and the sigmoid flexure; then follow the cecum, the splenic flexure and hepatic flexure. Sarcoma selects the small intestines. Strands and adhesions will form anywhere. Those from the region of the appendix pull on the adjacent small intestines rather than on the cecum. Adhesions originating from the gallbladder pass towards the transverse colon or the region of the pylorus. Tuberculosis favors the terminal ileum and the entire large intestine. Other ulcerative processes, as dysentery, gonorrhea and lues, attack chiefly the distal colon.

Volvulus occurs generally at a flexure, next most frequently in the ileocecal region. In intussusception the terminal ileum often protrudes into the cecum and then further into the colon. The older a patient with

ileus is, the more apt is carcinoma to be found the cause. Invagination occurs in the young; also Hirschsprung's disease, which may run the course of chronic ileus. Volvulus is found mostly in the male. Illnesses previously recovered from are of great importance. Inflammatory processes of whatever nature within the abdominal cavity may cause ileus by the resulting adhesions and strands, even after many years. Ulcerative processes of the intestines may result after a prolonged period in cicatricial stricture as in typhoid, dysentery, tuberculosis and lues. Gonorrheal strictures are found only in the sigmoid and rectum.

Previous symptoms of peptic ulcer and a sudden onset of ileus lead to the diagnosis of perforation of the stomach or duodenum. With a gallstone history one should think of gallstone ileus or pancreatitis.

With a tendency to thrombosis (thrombophlebitis), one should think of such a possibility in the mesenteric blood vessels.

If the patient presents a previous history of tuberculosis, lues or carcinoma which received radical treatment, then consideration should be given to a recurrence of the same process. The course in acute obstruction is stormy, especially in those cases with disturbance of nutrition. Incarceration with a narrow orifice runs the most rapid course, whereas volvulus and invagination have a less stormy course. Embolus runs a swifter course than thrombosis of the mesenteric blood vessels. The higher the obstruction is in the intestinal tract the more stormy is the course. A perforation of any hollow viscus results sooner or later in paralytic ileus; this also applies to the sterile gallbladder and massive hemorrhages.

Appendicitis may lead on to ileus in various ways. Every acute chronic or recurring appendicitis, through the formation of adhesions, bands or exudates, may result in compression of the intestines or by a complicating peritonitis cause intestinal paresis.

If the symptoms which the patient presents cannot be classified under the known forms of ileus and if in addition other hysterical stigmata are present, then the possibility of hysterical ileus must be considered.

A localized pain is always of great import-

ance, especially at the onset of the illness; it may direct us to the organ primarily involved. The most intense pain is encountered in embolus or thrombosis of the mesenteric blood vessels. Tumors by themselves are painless, also strands and often adhesions. It is the consequences that cause pain, such as distension of the intestines and increased peristalsis. Diffuse pain denotes the onset of meteorism or peritonitis. However, the severest septic peritonitis may run a course without pain. Accompanying the pain there are two symptoms which are of unusual importance, since they are present in individuals who are unable to inform us about pain, the unconscious and children: absence of respiratory movement of the diaphragm and of the abdomen and rigidity of the abdominal muscles.

Unusually disagreeable and painful is the presence of singultus. It may appear with all possible affections in the abdominal cavity, most often in peritonitis and peritoneal irritation, and is a grave sign.

In establishing the diagnosis not only should ileus be determined, but also the special diagnosis, that is the origin, the site and the nature of the malady.

The prognosis of ileus is in every instance a doubtful one. It is uncertain just how a light or an apparently light case will develop. Then again one sees a severe case recover without an operation.

In the treatment of ileus, the conservative and the operative therapy are to be considered. It is not to be inferred, however, that always the internist shall treat ileus conservatively and the surgeon treat it operatively. Formerly it was dealt with in that manner; the surgeon was not called until the internist found that he could do nothing further with the case, and it is not to be wondered at that the results were very poor.

Today the following rules are generally adhered to: An outspoken acute case of ileus belongs to the surgeon, who, however, should not operate on every case encountered unless a thorough examination is made and the proper indications for operative intervention are reached thereby. It is always to be remembered that each day's delay results in a poorer prognosis. Both internist and sur-

geon should cooperate from the start in every case of ileus.

There is always a possibility for ileus to subside. A paralyzed gut may resume its function, providing a main blood vessel is not involved. Impacted foreign bodies may pass motor function; the injury from emboli or thrombi may be adjusted by collateral nutrition; spasms may relax; stenosis may be overcome by increased activity of the proximal segment, then again by the disintegration of a tumor or by a pressure subsiding; an intussusception may return to a normal state.

Before deciding upon the method of surgical procedure, consideration must be given to the age of the patient, the general condition, and the condition of the individual organs; the duration of the ileus and the probable cause; the findings on opening the abdomen; the nature of the obstruction, and whether peritonitis has set in.

550 Metropolitan Building.

#### DISCUSSION.

**A. S. Taussig, Denver:** My experience with this disease has not been sufficiently great to warrant taking up much time discussing it. However, there is one point I should like to impress upon the members here. It strikes me that the most important thing in all abdominal conditions is, should there or should there not be surgical intervention? If we make up our minds that there should be surgical intervention, we should rapidly come to the conclusion how soon it should take place. I believe if we would always keep that in mind in all abdominal conditions we should have less trouble. It is very good for us to go into the diagnostic niceties, but the most important thing is to find out whether or not the abdomen should be opened. I believe the points that Dr. Mortimer has brought out in his paper should be carefully considered. Many times we examine the abdomen without considering the various conditions that may be present. Always before us is the question of appendicitis. If all the possibilities are considered, determine quickly whether or not surgical interference is needed. The exact diagnosis can be taken up later on.

**Leonard Freeman, Denver:** I think Dr. Mortimer has given us a very excellent resumé of this extremely important subject. It is one of the most important subjects that we have to deal with, because if the condition is not understood and the proper action is not taken, the patient will probably die. I think he is correct in saying that the word "ileus" should be confined to the cases in which there is actual obstruction, whether the obstruction be mechanical or simply a spasmodic obstruction. I want to emphasize one phase of the subject, and that is spasmodic ileus—spastic ileus, so-called. This is supposed to be an uncommon disease. Very likely it is not quite as uncommon as was formerly thought. I think many of the cases that have been presumed to be cured by the use of various antispasmodic remedies, and



by the use of other forms of treatment such as injections into the bowels and lavage of the stomach, were really not cases of mechanical ileus, but were cases of spastic ileus. Now, what is this spastic ileus? It is a spasmodic contraction of the musculature of the intestinal canal. What is it due to? It is due, as far as we know, to some irritation in the peritoneal cavity—outside of the intestinal canal, within the intestinal canal, or even outside of the abdominal cavity altogether. It has been known to occur, for instance, in connection with a twisted testis, a strangulated hernia, or a twisted ovarian cyst. So there is no particular place, apparently, where the irritation always occurs. What does spastic ileus look like? I can speak with conviction, because I have seen it myself in a bowel which was obstructed by a spasmodic contraction of its musculature. The spasmodic contraction, in the extreme cases at least, is so firm that the bowel is deprived of blood. It looks white. The contraction is so intense that it stiffens the bowel so that you can take it up like you would pick up a fountain pen. If the natural lumen of the bowel is as large as my first finger or thumb, it will be contracted down to a little thing not bigger than a fountain pen. This spasmodic contraction is so extreme that it will persist all the time during an operation, although the patient is under profound anesthesia. It even has been found after death, at autopsy. The symptoms of this spasmodic contraction, which is usually found, but not always, in the lower part of the ileum, near the ileocecal valve, are those of intestinal obstruction. If we knew the history minutely and knew that there were intervals of obstruction followed by intervals when there was no obstruction, we might guess that it was a spasmodic obstruction; but ordinarily we cannot say with certainty that it is spasmodic. The diagnosis is the thing that is of greatest importance. Now, the diagnosis is, as I have already stated, uncertain. If there are intervals when there is no obstruction, then, of course, we might guess at it; but the important point to emphasize is this, that the diagnosis is so hard to make, is so uncertain, is of so much importance, and so much depends upon it, that we cannot afford to guess. So when you have a case of absolute obstruction of the bowels, with vomiting, although you may think you know that it is a spasmodic obstruction, you have no right to make that diagnosis, because it might be wrong and cost the life of the patient. The treatment of spasmodic obstruction should be spoken of. If we knew that it was spasmodic we might depend, perhaps, upon antispasmodics, at least in some cases, and we might succeed with them; but even when the ileus is spasmodic it may lead to death, especially in young children. Hence, we cannot afford to experiment with antispasmodics, but the treatment should be operative in the bad cases, the same as if we did not suspect spasmodic obstruction. I want to add to this, that when we find an ileus to be spasmodic the mere opening of the abdomen may correct it, either at the time or shortly after the abdomen is closed. I have made the suggestion that when such a spasmodic obstruction of the bowel is found we might short-circuit it, but there is no precedent for this and I hesitate to advocate it; I am merely suggesting it as a possibility. It has been found that when the abdomen is closed in these cases the spasm nearly always relaxes afterwards; but the difficulty is that the spasm is apt to recur and death result, hence my suggestion of short-circuiting. I have had several cases of spastic ileus, and one

in particular in a very small child, in which I opened the abdomen and found spasmodic obstruction. I had to close the abdomen without doing anything because the condition of the child demanded it. Immediately afterwards the spasm relaxed, the child got well, remained well for six weeks, and then died of a repetition of the trouble.

**C. E. Tennant, Denver:** I want to refer to a case coming under my observation a few weeks ago, that of a paralytic ileus which involved the appendix. It is a mooted question as to whether we really do have traumatic appendicitis, but within six or eight hours after a patient's fall I had occasion to operate for a diagnosed appendicitis. By the way, it had been called to the patient's attention sometime prior to this incident, but within six or eight hours after the fall he had a very definite abdominal affair, and in operating I found the appendix and the ileum adjoining the cecum in spasm, and, of course, I removed the appendix at the time. I feel that it is well to speak of the traumatic appendix in relation to this subject under discussion because of the possibility of both questions being involved.

**O. M. Shere, Denver:** Dr. Mortimer's paper has been extremely interesting to me, because this is a subject which perplexed me for a good many years. Among the different forms of ileus described in his paper there is one which is especially interesting to the surgeon, and that is post-operative paralytic ileus. These cases were left alone in the past and the mortality was one hundred percent in the true cases of paralytic ileus. In present-day practice the surgeon has no other choice, according to accepted standards, than to operate on these patients, since this holds out the only chance for recovery, though this chance we must admit is but a meager one. During the operation one is impressed with the normal appearance of the peritoneum, the absence of fluid in the abdominal cavity and the negligible quantity of adhesions. Notwithstanding this the bowel is in a state of complete paralysis. Clinically these patients present a rather deceiving picture. While the pulse remains good, temperature normal and respiration unimpaired, the abdomen becomes more and more distended and the case makes a lethal exitus in from forty-eight to seventy-two hours. During all this time the outward appearance of the patient presents no alarming signs. If Dr. Mortimer can enlighten us upon either the true etiology or pathology of these cases I, for one, would greatly appreciate it.

**Dr. Mortimer (closing):** I am really pleased that Dr. Freeman brought up the subject of the spastic type of intestinal obstruction. I had the pleasure of having him discuss my paper on that subject last year. It is an extremely interesting subject. There is one course that I have followed for the last two or three years: In those cases in which I suspect or consider that surgical intervention is necessary, I call in a surgeon early. A number of these cases pull through without operation, but I feel more at ease when I have a surgeon observe the case with me; and I believe if that course is followed the prognosis in a number of the cases would be far more favorable.

**SIXTEEN HUNDRED PETITIONS FOR THE PSYCHOPATHIC HOSPITAL APPROPRIATION BILL ARE OUT; TWO HUNDRED COMPLETELY FILLED ARE NEEDED. GET AS MANY NAMES AS POSSIBLE.**

## ETIOLOGICAL FACTORS AND TREATMENT OF CERTAIN TYPES OF SURGICAL INFECTIONS.\*

C. E. TENNANT, M.D., DENVER.

After the association of microorganisms with all surgical infections had been fully established it was quite reasonable to seek a destructive agent for these bacteria. This marked the age of antiseptics. Out of the maze of an endless number of these antiseptics, every one of which was supposed to have certain magical, death-dealing effects upon bacteria, few have survived the test of time as proving uniformly effective in the control of infections. Some of them have even proven a detriment rather than a help, either because of their decidedly destructive influence upon the tissues or because, having little or no injurious effects upon the tissues, there is likewise little effect upon the invading guest. Again, there are others that, while having but little influence upon the tissues, do have a decided bactericidal effect, but their application requires so careful a technic that it is practically impossible to use them successfully outside of well-organized and well-equipped hospitals and clinics.

The use of iodine as a mild antiseptic is growing more in favor. It is quite possible, however, that its therapeutic action upon the tissues, and not its bactericidal power, has much to do with its efficacy. Alcohol as an antiseptic agent seems to be growing more popular since our prohibition laws are becoming more effective, and will, no doubt, continue to grow in favor because it is a very valuable antiseptic agent when properly used.

The recent world catastrophe furnished a vast amount of material for the trying out of various methods of control of wound infections, but in the light of recent observations it would seem that only three methods stand out prominently as most popular. These are, in the order of their popularity, probably first, the Carrel-Dakin method, which was more commonly used by the

French surgeons; second, the débridement, or total excision of the lacerated and dead tissue, most popular among the English surgeons; and, finally, the old and well-known method of hyperemia, which was systematized by Bier some twelve years ago. This latter method has been in practice for many of the patient should precede the application of the Bier's hyperemia. This same centuries under various names, and like the first, which was the old chlorine or Labarraque solution method, used by some during the civil war, has been coming into favor again with improved ways of application. Underlying all these various efforts there is a force that has been recognized more or less throughout the ages, which if properly interpreted and applied, will many times change completely the aspect of a desperate case of localized infection when all antiseptic measures have failed, but which has not yet been definitely isolated or measured. This is the unknown ingredient of the blood which without question has at times a marked bactericidal influence, for it is a well-known fact that tissues which are really bathed or even well supplied with blood are less prone to suffer the inroads of bacteria. We may perhaps make the exception of one organism, since within the past two years it has shown its absolute indifference to all bactericidal agents and sera. I refer to the streptococcus hemolyticus.

It has many times been said that nature abhors a vacuum, and it might also be added that the human body abhors an artificial cavity or a natural cavity poorly drained. Either of these are quickly invaded by organisms and the body is compelled to tolerate them and their cultural products, or toxins, until such time as surgery intervenes to destroy their habitat. This is accomplished either by obliterating the cavity, if artificial, or providing good and sufficient drainage if a natural one. When living tissues are so badly shattered or lacerated that their nutrition is materially impaired, then again we have active bacterial invasion, and the consistent treatment to apply is the elimination of the debris by total excision and the encouragement of the best blood supply possible. On the other hand, in a cleanly

\*Read at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1919.



incised wound where infection manifests itself notwithstanding an excellent blood supply, we have an invading organism, probably streptococcic, which will demand all the aid of the surgeon's art to overcome.

Surgery as an art applied to infections embodies many diversified methods of treatment, which in these stressful times become very difficult of execution. With the scarcity of help and materials, the ever-increasing demands made upon the time of the surgeon and his associates, and the difficulty of securing some of our antiseptic materials, the quality of the work and the results secured fall far short of what they should be. Notwithstanding these facts, however, our results are growing generally better, and where once it frequently became necessary to perform extensive operations and amputations to eliminate useless extremities, the result of these infections, we are today saving many of them and restoring them to good functional use. All this requires a considerable amount of time, patience and care and the exercise of good judgment. There is no question that the more the latter are applied to the treatment of these infections and the less the antiseptics are used, the more certain we shall be of our ultimate outcome. As a matter of fact the physical condition of the patient has much to do with the results, and many times intensive treatment of the patient and only incidental treatment of the wound with ordinary cleanliness, will bring far better results than are obtained when the process is reversed.

As has been suggested, the presence of bacteria in infections often indicates that they are but the products of pathologic processes, or in other words, they have developed upon fields made receptive to them because of some physical condition of the host, either local or general. This naturally calls for such a system of treatment as will make the guest an unwelcome one. Simple cleanliness of the wound, mental and physical rest to the patient, with relief from constricting bandages and dressings and the induction of a better blood supply, both as to quantity and quality, will more frequently control and eradicate many of the staphylococcic and streptococcic infections than all the an-

tiseptics, both past and present, known to the history of surgery.

Another valuable adjunct which should be constantly borne in mind is the use of heat. This applied either in the moist or dry form is of great value, and yet should be used only after due regard to the need of the individual. For instance, the application of dry heat in an acute streptococcic infection of the tissues would not give the satisfactory results which moist heat would, applied under the same conditions. The simple immersion of an acutely infected finger, hand, arm or other extremity in the water bath for long periods of time, in order to induce active hyperemia and the flooding of the parts with moisture, will quickly turn the tide in many an impending infectious catastrophe.

As a general rule infections in their acute stages are better controlled with moist heat than dry; though later dry heat may be applied with equally good results.

In the use of Bier's hyperemia for the control of certain infections the idea is to secure the greatest amount of blood possible to overwhelm these infections. But if the patient's blood analysis shows low hemoglobin and a low polymorphonuclear count we cannot expect to have the proper bactericidal coefficient, and in that case treatment thought should be applied when we undertake to use the mild antiseptics now popular among the profession, because their effect upon the organism may not always be destructive but only inhibitive and the vital forces inherent in the individual must necessarily do the rest.

In connection with this thought of agents that are systematically helpful in the control of the infection, I wish briefly to mention the use of open air and sunshine. Both of these have long been recognized as of extreme value in the care of these cases, and yet how seldom do we put it into practical application, with our patients confined within the hospital walls, many times far removed from this valuable aid, either because of their location in the wards, or because of unnecessarily massive dressings hiding the wound, in what sometimes proves to be eternal darkness.

Speaking of massive dressings brings us to the consideration of the material selected for the first covering of some of these infectious wounds. Too frequently gauze dressings are placed immediately in contact with the wound, and the meshes, quickly filling with the purulent material, block the further egress of the discharges; or they dry sufficiently to become an integral part of the surface of the wound, only to be torn away at the next dressing period, leaving a bleeding, re-traumatized surface, the healing of which has been retarded just so much with each lifting of the immediate covering. The use of a waxed open mesh, to which I referred several years ago, or even the open dressing advocated and applied by the writer and others, would certainly do much to stop the revels of the infective agent, and reduce the extent of the cicatricial tissue.

The remarkable results which have been obtained by the application of the Dakin's solution, in desperate infections, stamp it as one of the methods which has come to stay. Its selection, however, must be made with great care and judgment, because, unless the technic is rigidly followed the results are worse than those obtained by our older methods. To follow out the technic successfully in civil practice requires the almost constant attention of someone to see that the solution is applied at definite and stated intervals in order to flush the cavity. The solution itself must be made up practically every twenty-four hours, and its production must be in the hands of one thoroughly trained for volumetric work, who may be found only in well-appointed laboratories. I believe, however, the results sometimes attained well justify the effort.

The method of débridement used so much by the English surgeons in the recent war, appeals to one as extremely practical in certain classes of injuries. Such injuries are most frequently found about industrial plants, in street car accidents and in automobile casualties. Even here, however, the application of this treatment will not be called for as frequently as in war surgery. However, the excision of badly lacerated tissues in their entirety, followed by the immediate closing of the wound, may at times

be good practice, providing the patient is watched hourly for possible deep infections. Should these occur, the wound may be immediately opened and the Carrel-Dakin method applied with an equally satisfactory result. This procedure is entirely justifiable, providing the most careful attention and hourly watching are given the patient.

Before closing I wish to call attention to three measures in the care of these infections, all of which are in a way prophylactic. One is the application of iodine to the wounded part immediately upon the occurrence of the wound. I believe that it should be made a universal practice that all industrial plants should be provided with this agent for emergency use, and the advice for its use freely dispensed to the laity. Another is the routine use of the tetanus antitoxin in many of these cases. The last is in the care of the ordinary furunculosis, which at best is usually more abused by traumatic insult and bad nursing than any other type of infection which we have. More recently I have been very much impressed with several factors which have proven most successful in the abortion and control of these so-called carbuncles, while formerly I was inclined to immediately attack and completely excise them, believing at that time it was the only satisfactory recourse which we had. As these carbuncles commence with a small insidious localized infection, a so-called pimple, and as they are usually located on the back of the neck, where the individual cannot see or reach them, he continues wearing a stiff collar from day to day, constantly insulting and traumatizing these apparently innocent affairs until the pus has burrowed underneath the skin and a well-defined carbuncle is presented to the physician for his attention. Not infrequently the patient is in poor physical and mental condition, because of the constant harassment, but he insists upon continuing with his daily work. Careful attention to a detailed routine to avoid the constant aggravation to the already overburdened tissues, immediate and long-continued application of moist heat at a temperature of 112° to 118°, an effective, deep, crucial incision with the removal of a portion of the underlying indurated masses,



and the frequent application of diathermy will almost invariably return the patient to his usual occupation within a third of the time that was formerly required under our radical excision method.

In closing, I may say that the treatment of surgical infections requires an unlimited amount of time, diligence and judgment if one expects to shorten the period of disability of the patient, and return him to his useful occupation with the least amount of deformity. As an adjunct in the care I will add that a properly prepared autogenous vaccine may be worthy of consideration, especially where this may be secured from a well-equipped clinical laboratory.

#### DISCUSSION.

**Leonard Freeman, Denver:** I think a word ought to be said on this important paper. Pardon me for discussing two papers in succession, but the circumstances have been such that I have not been able to be present at these meetings. Dr. Tennant has called attention to a very important thing, that infection is not due to microorganisms alone. A good many things help to cause infection—I probably don't know all of them, but I know some of them: (1) There is the particular kind of germ. (2) There is the condition the germ has been grown under—whether it previously has passed through other individuals. (3) The number of germs which get into the tissues: a few germs might not produce infection, but many germs may do so. (4) Whether the bacteria are moist or dry when they enter the wound. Germs which are moist affect the tissues more easily. Germs that have been thoroughly dry for a long time, floating in the air for instance, do not affect tissues easily. (5) Whether there is any foreign body present or not. Then, there is the condition of the patient himself, and that is the point Dr. Tennant has emphasized for us. The condition of the patient is of great importance—his general resistance and his local resistance. Men who have been injured by alcohol, by overwork, by anything that reduces the vitality, are more liable to infection, and that I am sure Dr. Powers would emphasize if he were to speak upon this subject. The condition of local tissues is important. Perhaps, for instance, they have been deprived of their vitality by traumatism, and hence the custom that was so extensively carried out in the recent war of cutting out all the bruised and devitalized tissues has given rise to an advance in surgery which we all recognize. This is not a new idea, however. It was strongly brought forward by others before the war. In Berlin, in 1914, for instance, I heard this point strongly emphasized by Frank. It was claimed that all infections take place from the fingers, the instruments and the sponges, especially if the tissues were bruised, and not from the skin of the patient. Frank took two hundred patients just as they came from the streets, without any preparation of the skin, and operated upon them, using the most extreme care not to bruise the tissues. He did not use thumb forceps, he did not grasp the peritoneum with hemostatic forceps, he did not even use retractors,

and in these two hundred cases he got about the usual two percent of infections, and these were merely stitch abscesses. Then he took another two hundred cases, preparing the skin with the most elaborate care, and operated upon them in the same way that he operated upon the other cases, and he got the same two percent of infections. I am not advocating the abolishment of cleanliness in regards to the skin. I am simply stating what was done. My own standpoint is, we ought to hang on to anything that leads to the avoidance of infection; but such an experience is worth thinking of. It emphasizes strongly what Dr. Tennant has been trying to tell us, that there are other things in infections besides the mere germs themselves.

**C. A. Powers, Denver:** As Dr. Freeman has made the suggestion, I will say a word about the Carrel-Dakin treatment and débridement. I believe that this latter is more due to the French than to the British. I think that the French made use of it rather earlier than did the British. It is very difficult to know how far to go with the débridement—as a general rule, the cutting until muscular tissue quivers under the knife. We found when we began to practice this that at first we did not go quite far enough, and then I think we all went rather too far. We erred on the side of taking away a great deal of tissue; then the pendulum, after a good many months of experience, gradually swung back, and I am sure that in 1918 our results were far better than they had been in previous years. It is a thing which one has to find out by experience, and it is a thing which I do not believe can be well taught in books. The principle is a splendid one, and those of us who saw the tremendous amount of gas bacillus infection, the rapid development of gas infection in France, especially gas combined with streptococcus, realize the importance of this complete excision of contused tissue. I am very glad that Dr. Tennant has called attention to this particular point. It is one of the important things brought out by the recent war.

**Dr. Tennant (closing):** Mr. Chairman, I am very glad to learn that the French first introduced débridement; but over here, those of us not in the service got our information largely from Moynihan when he visited this country, and we felt it was the English that were advocating it strongly. One thing that has occurred to me that I feel like emphasizing is the consideration of the individual, and this from a blood analysis. Many times something can be added to the individual resistance by absolute rest, and by not permitting the patient to work before it is time. I do want to emphasize the point of looking after the individual in regard to his blood, and know exactly what can be done to improve the local condition by proper treatment of the anemia if such is present.

**EVERY PHYSICIAN IS FAMILIAR WITH THE SHORTCOMINGS OF THE STATE OF COLORADO IN THE MATTER OF THE PROVISION AND TREATMENT FOR THE ACUTE INSANE. IT IS WITHIN THE PROVINCE OF THE PHYSICIANS, INDIVIDUALLY AND COLLECTIVELY, TO SATISFY THIS URGENT NEED. CARRY THE PETITION WITH YOU!**

**DO YOU WISH TO READ A PAPER AT THE ANNUAL MEETING? FOLLOW INSTRUCTIONS IN CURRENT COMMENT AT ONCE.**

## A REPORT OF THREE CASES PRESENTING A MASTO-OVARIAN SYNDROME, RELIEVED BY CORPUS LUTEUM.\*

JOHN B. HARTWELL, M.D., F.A.C.S.,  
Colorado Springs.

The symptom complex, of which I shall cite three examples, is characterized by three features—pain in the breast, constant, sub-acute and disabling, independent of menstruation; irregular, painful, scanty menstruation; and a blood pressure below the accepted normal.

**Case 1.** Miss H. S., aged twenty years, was first seen November 16, 1916, on account of constant pain in her breast, exaggerated during menstruation.

**Family History:** Father died during patient's infancy. Mother is said to have tabes. One married sister is well and has never had trouble at her menstrual periods.

**Past History:** Had measles and whooping cough as a child. At maturity (age sixteen) began to be troubled with a "lump in her throat" (causing neither dyspnea nor dysphagia), headache and a feeling of drowsiness. These symptoms were independent of her catamenia and were present one day and absent the next. Catamenia began at the sixteenth year and has always been irregular. During her eighteenth year had amenorrhea for three months. Since then catamenia has come every five to seven weeks. Two days before flow begins there is acute steady pain in the right lower quadrant of the abdomen, radiating to the left lower quadrant, so severe that the patient always stays in bed, and has taken codeine for its relief. The first few hours of the flow the menstrual discharge is very dark in color. Flow is normally red for two days, but scanty and the last two days is barely a stain.

**Present Illness:** Has always had a sense of fullness in the breast just before being unwell, but for the past four months pain in the breasts has been acute, and if any pressure is put on them, pain radiates down the arms. Has given up her job as salesgirl in a department store because of this pain. Has also been obliged to discard her corsets. Pain

is worse in the left breast than the right, and is increased just before menstruation. Sleep has been interfered with, and mild opiates have been taken in order to secure some rest.

**Physical Examination:** Undersized, pale, neurotic and erotic Jewish girl. Complexion dark; skin soft and smooth; teeth in excellent condition, lower third molars absent; tongue clean and moist, tonsils project beyond the pillars, but are otherwise not notable. No glands felt in neck, axillae or groin. No goiter. Heart and lungs not found abnormal. Blood pressure: Systolic 100, diastolic 68. Hemoglobin 85 percent (Tallquist). Wassermann, negative. Breasts, small, sessile, not striated. Left breast slightly larger than right. Both breasts acutely tender to touch and on pressure pain radiates into the inner aspects of the arms. Abdomen: negative. Vaginal: thin, whitish vaginal discharge. Cervix not lacerated, points in the axis of the vagina; fundus ante-flexed, not fixed, smaller than normal. Left ovary normal in size. Nothing felt in the right culdesac.

Patient was advised to take corpus luteum tablets, gr. V., twice a day.

**Subsequent History:** December 10, 1916, patient reported that about a week after taking the tablets she was able to wear her corsets and to resume her work. Though the breasts were still slightly tender, the pain radiating into her arms had disappeared. Has not been unwell.

January 13, 1917. Tablets gone and wishes to know whether or not she shall continue. Is not now conscious of her breasts. Was unwell December 14 and for the first time since she matured was able to work through the period. Breasts were a little sore just before the period. Blood pressure: systolic 108, diastolic 76.

May 2, 1917. Tablets are so expensive that she has repeatedly stopped taking them when the supply became exhausted, but each time has had a recurrence of the breast pain and then has resumed taking the tablets. At times they nauseate her. Catamenia has been coming every thirty-three days, last period April 24. Has been working through

\*Read at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1919.



each period. Blood pressure: systolic 112, diastolic 68.

August 7, 1917. Each time she has omitted her tablets, breast pain has recurred. Periods come every thirty to thirty-seven days and are more profuse than they used to be.

Letter under date of August 1, 1919, reports that she is still taking corpus luteum. If she omits it for a week, breast pain recurs, and it takes another week before she is rid of it. Blood pressure reported to be 122.

**Case 2.** Miss L. M. C., a trained nurse, was first seen March 6, 1917, on account of constant pain in both breasts, but worse in the left breast than the right. Duration of pain six months.

**Family History:** Father died from unknown cause when patient was a child. Mother has pulmonary tuberculosis; two sisters are living and neither has trouble at the menstrual period.

**Past History:** At about four years of age had osteomyelitis of the left tibia. When about nine years old submitted to operation for tuberculous glands of the neck. In 1913 had a laparotomy for perforating appendicitis. Catamenia began at the age of eleven. Periods very irregular—three to nine weeks. About a week before period is due has a sense of weight in the pelvis, is nauseated and occasionally vomits. The day before the flow appears, has very acute cramps, pain radiating from above the pubes into the right lower quadrant. When the flow begins the color of the menstrual discharge is chocolate. After a few hours, "gets a terrible pain," and thereafter the menstrual discharge becomes bloody. Has slight cramping for a couple of days. Is unwell seven to ten days, but flows practically none after the second day.

**Physical Examination:** Fair complexioned, aene-faced young woman. Does not appear sick. Scars of operation for removal of glands in right side of neck. No enlarged glands palpable on either side of neck. Teeth in excellent condition. Upper left third molar not erupted. Tongue moist and clean. Tonsils hidden behind the pillars. Heart and lungs not found abnormal. Pulse, 82; blood pressure: systolic 106, diastolic 64.

Breasts of moderate size, somewhat pendulous, the left a little larger than the right; no pigmentation of the areolae; no striae; no masses felt in the breasts, but both breasts are acutely tender in all four quadrants. No glands felt in either axilla. Abdomen presents a four-inch broad scar over the belly of the right rectus muscle extending downward from the level of the umbilicus. Lower angle of the scar puckered. Abdomen level, no spasm nor rigidity of the muscles, no points of tenderness discovered and no masses felt. Liver dullness extends from the fifth intercostal space to the costal margin in the nipple line. Edge not felt. Spleen edge not felt. No costovertebral tenderness. Lower pole of right kidney palpable on deep inspiration, left kidney not felt. Rectal examination: Cervix points in the axis of the vagina or slightly forward. Body of the uterus sharply anteflexed, mobile, not tender. Size apparently normal. Nothing felt in the culdesac.

Patient was advised to wear a brassiere, and corpus luteum, gr. V., prescribed morning and night.

**Subsequent History:** June 1, 1917. Patient reported that the pain in her breasts was relieved after taking the luteum for a week, and that her April and May menstrual periods had come at twenty-nine-day intervals. The disagreeable prodromata had been absent on both occasions and easily bearable "cramps" were the only pains she had experienced. The flow had been bloody from the start and had been much more profuse than ever before. Blood pressure reading: systolic 124, diastolic 68.

July 15, 1917. Though advised to continue luteum, she had omitted it on her own responsibility with almost immediate return of the pain in her breasts. On resuming the luteum the pain again disappeared. Her June period had been a week late, but was not very painful.

July 4, 1919. In a letter she states that each time she has omitted her luteum her breast pain has recurred, to disappear within a few days after the resumption of the medicine. Her periods have been more regular than ever before, always between twenty-eight and thirty-five days, and the

accompanying pain "is scarcely worth mentioning." Systolic blood pressure was taken at my request by another doctor and reported to be 120.

**Case 3.** Miss S. A. T., aged twenty-nine years, was first seen May 13, 1917, on account of pain in both breasts of five months' duration, steadily increasing in severity.

**Family History:** Negative. Has no sisters.

**Past History:** Had the usual diseases of childhood and has since been well, save for dysmenorrhea. Catamenia began at the age of fourteen and has always been irregular; interval eighteen to thirty days, and flow scanty. Duration never over three days. Has always had pain two days before the flow and has always gone to bed the day before the flow began. In September, 1912, submitted to laparotomy on account of dysmenorrhea. Both ovaries were said to have contained cysts and to have been resected, and the uterus was said to have been suspended. Since her operation periods have been more frequent than previously, but the premenstrual pain has been little influenced.

**Present Illness:** Breasts have always been a bit sore a week before she was unwell, but during the past five months soreness has become constant, and during the last month has been getting so much worse that unless relieved she will be unable to carry on her work as dressmaker.

**Physical Examination:** Tall, slender, fair complexioned woman. Does not look sick. Skin and mucous membrane of good color. Tongue clean and moist. Teeth in good condition, none missing. Tonsils hidden behind the pillars. No glands felt in the neck, axillae or groin; no goiter. Heart and lungs not found abnormal. Blood pressure: systolic 104, diastolic 71. Breasts small, sessile, not striated, acutely tender to pressure in all four quadrants. No masses felt. Abdomen presents in the median line above the symphysis a four-inch scar. Abdomen otherwise negative. Vaginal: cervix points slightly backward and is held very high; the fundus is acutely anteflexed and fixed. No masses nor tenderness in either culdesac. Reflexes normal. Urine negative.

Patient was ordered corpus luteum, gr. V., twice a day.

**Subsequent History:** August 3, 1917. Patient reports that her breast pain had been relieved within a week after beginning the tablets, and so long as she has taken them has not been conscious of her breasts. When the supply gave out she discontinued them, with recurrence of the pain. This experience has happened twice. Catamenia came every twenty-four or twenty-five days, the flow more profuse than usual, and continued four days. Premenstrual pain less than ever before, but not wholly relieved. Blood pressure: systolic 120, diastolic 68.

July 16, 1919. Letter states that breasts burn and tingle and ache if she omits her luteum. Menstrual periods are not quite so regular as a year ago, but come between eighteen and twenty-seven days and last four days. Pain before the menstrual period is about the same as a year ago. "The tablets have given more relief than the operation did." Blood pressure is reported as 128.

The symptoms above presented and the favorable results of the therapy employed must doubtless be explainable on the basis of the action of internal secretions. But so complex and as yet undetermined is the interaction of the endocrines that I may seem to indulge in wild speculation in attempting an explanation.

There are certain pertinent facts that point indisputably to a correlation of the ovaries and breasts. Hypertrophy of the breasts accompanies the beginning of ovulation and the production of corpora lutea in the ovary at puberty, and, reversely, atrophy of the breasts accompanies cessation of ovulation and the cessation of the production of corpora lutea at the menopause; castration before puberty results in a lack of development of the mammae; premenstrual swelling of the breasts is of common occurrence and premenstrual pain in the breasts without swelling is not rare.

Loeb<sup>1</sup> has shown experimentally in guinea pigs that ovulation is retarded by the presence of an active corpus luteum, and Loeb and Hasselberg<sup>2</sup> seem to have shown that the mammary gland undergoes a series of two-cyclic changes comparable with the changes



in the uterine mucosa. The first phase comprises the period of heat and the following several days. It is characterized by mitotic cell division in the mammae and depends on the absence or degeneration of the corpus luteum in the ovary; the second phase is not associated with cell proliferation and corresponds to the period of growth and activity of the corpus luteum.

If we can assume a similar origin for the not uncommon premenstrual swelling or pain in the breasts of woman, the good result reported by Lisser<sup>3</sup> in overcoming the premenstrual tenderness in the breasts by using corpus luteum seems to have a rational explanation.

To explain lactation amenorrhea, Novak<sup>4</sup> suggests that the functioning mammary gland nullifies the menstrual function of the corpus luteum. He also states as a result of his study that lutein tissue in some stage is always present in the ovaries during the sexual life of woman.

In my patients, the intermenstrual period was prolonged beyond the accepted normal; the menstrual flow was scanty and of short duration. These symptoms may conceivably be analogous in origin to lactation amenorrhea. The breast pain may conceivably be due to pressure in consequence of a continuous proliferation in the gland acini, though no enlargement of the breasts was noted and no secretion was demonstrable. If this can be assumed, the analogy between lactation amenorrhea and the conditions here described becomes more close. But it presumes the presence of an internal secretion in the mammary gland and fails to account for the low blood pressure.

Clinically, there is some evidence in favor of an internal secretion by the mammae, and reports of favorable clinical results in cases of menorrhagia and metrorrhagia by the use of mammary extract are not difficult to find in the literature. Sajous,<sup>5</sup> however, writes: "It is held by some that the mammary gland produces an internal secretion, but whatever evidence there is on the subject is so weak that it can hardly be taken into account. An extract lowers somewhat and but temporarily the blood pressure and pulse." If we presume that an internal secretion constant-

ly added to the blood stream may maintain a reduced blood pressure, the third symptom is explained. We have, then, only to grant that the corpus luteum and the mammary internal secretion are antagonistic, as Novak suggested, and the favorable effect of administering the corpus luteum in the cases described seems a rational procedure.

In conclusion: The masto-ovarian syndrome here illustrated may have an origin similar to that of lactation amenorrhea. The assumption of the presence of an internal secretion by the mammae antagonistic in its effects to the corpus luteum of the ovary simplifies the explanation of the syndrome and the benefit derived from taking corpus luteum.

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#### DISCUSSION.

**C. B. Ingraham, Denver:** It is unfortunate that we have been unable to learn a great deal about this subject. There are a great many drawbacks; there is no scientific way of measuring clinical results, nor do we know the chemistry of the secretion which affects the different glands, and we do not know how much one gland acts alone or is necessarily correlated with other glands. So often we are in doubt as to whether we would better give the extract of one gland or of several. My own personal experience with corpus luteum has been mostly in those cases of insufficient ovarian secretion where there has been removal of the ovaries; in such cases about eighty percent of women will suffer from nervousness and hot flashes. In this class I think corpus luteum is successfully relieving a great many. Another class of cases, young women subject to functional amenorrhea, is successfully treated, but not as successfully as the first class. Another condition is, where there is insufficient circulation in the external genitalia (kraurosis vulvae). They are cases difficult to treat and very often are helped by ovarian secretion.

As Dr. Hartwell has shown, there is an antagonism between the mammary gland and ovarian tissues, and he has shown the effect of the ovarian tissue on the mammary gland. Conversely, when you have a menorrhagia, excessive ovarian secretion, very often it is treated successfully by mammary gland extract.

I am very glad to have heard this instructive paper and the report of the three cases.

**C. A. Ferris, Denver:** Science has not as yet entirely developed just how these secretions act, but we know, for instance, that the resection of both ovaries of a woman in the child-bearing period produces sterility, a cessation of menstruation, by which fact we determine that the ovarian secretion must control the act of menstruation, and by the same reckoning we know the peculiar relationship which exists between the mammary secretion and the ovaries and the reproductive organs. I take it that everybody here is familiar with most of these facts. I have jotted down for your consideration one or two cases in my own experience which are rather of unusual occurrence and which prove that there is something to the therapy of corpus luteum as exhibited today.

I wish to report a case which came to me last year, a white American woman, age twenty-three, whose family and past history were negative. Previously, her menstrual history has been normal. She has been a widow for the past four and a half months. She thinks she has been pregnant five months. The history is as follows: Menstruation almost ceased since husband's death. Two months after his death a enrettement was performed, I don't know by whom, with the intent of making her flow more freely—I cannot understand exactly what result was expected. After that there were no menses up to the present time, when the patient persists in declaring she must be about five months pregnant. She presents the following symptoms: Headache, feeling as though she was going to menstruate, pain in the hips radiating to knees, and abdomen enlarged. Examination showed that she absolutely was not pregnant. After three treatments with corpus luteum hypodermically she menstruates normally and all symptoms have cleared up.

**W. F. Singer, Pueblo:** In several cases which I have seen in my general work in which there has been disturbed menstruation, I have been impressed with the fact that medication with the hypodermic is very beneficial, and we get prompt results in many cases. In other words, there is a hysterical element in the case that should not be overlooked. For instance, I note that the doctor says that when the corpus luteum is administered by the hypodermic needle he gets better results than by the mouth. I also want to mention the fact that the essayist and Dr. Ferris spoke of several symptoms which were those of hysteria, that hysteria was a direct element in those cases, and I don't think it ought to be overlooked that hysteria is an important element in the consideration of them.

**Dr. Hartwell (closing):** I think there is little to say in further discussion. I should like to state in answer to the last speaker's question that the luteum, as I gave it, was given by mouth, although the first patient whose case I reported was distinctly hysterical. Still, she had been treated and had taken opiates for the dysmenorrhea, and after taking the luteum those symptoms were so far relieved that she was able to continue her work, so I think that although she had these hysterical stigmata the dysmenorrhea which she had was not of hysterical origin.

The syndrome which I presented struck me rather forcibly. I have not seen the same symptom-complex anywhere else described, and the rise of blood pressure under the administration of corpus luteum I think is rather unexpected, because I believe the best experimental work that has been done with the extract shows that its administration tends to lower the blood pressure and Dann-

reuther makes a special point of emphasizing that where corpus luteum is used it is very necessary to make frequent blood pressure readings in order that its use may be discontinued after the blood pressure falls more than fifteen millimeters.

## ANTITUBERCULOSIS ACTIVITIES IN FRANCE.\*

CLOUGH TURRILL BURNETT, M.D., Denver.

Exaggeration in matters scientific is usually to be deplored, yet in the matter forming the subject of this discussion exaggeration has resulted in great benefit to France, and later to others of the allied countries abroad, and because of the whole-souled assistance given to these countries benefit has been felt at home.

With a remarkable provincialism those interested in the antituberculosis crusade in this country were very little informed regarding conditions in France before the war. England, led by Philip of Edinburgh, had attracted considerable attention through her domiciliary care of the tuberculous, but France, though the home of dispensary service at Lille, remained a field of very slight interest. It required the great war, with its terrific losses of life and its effect upon the civilian population, to thoroughly awaken the French and those interested in their welfare to the real aspect of the situation. Professor Landowzy estimated the number of cases of tuberculosis in the French army to be one hundred and fifty thousand. This exaggeration was widely accepted as representing a real danger to all of the allied armies and also as an index of the amount of tuberculosis to be found amongst the civilian population.

It was in response to this alarm that Dr. Herman Biggs was sent to France by the International Health Board of the Rockefeller Foundation to investigate and report. His report showed nearly five hundred thousand cases of tuberculosis in France, of which two hundred and fifteen thousand were or had been in the French army. Somewhat later M. Godart, reporting to the French government, stated that the total of all cases in the French army up to August 31, 1917, was eighty-nine thousand four hun-

\*Read at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1919.



dred and thirty, this including a very large number of cases undoubtedly existing at the time when France was called upon to rapidly mobilize. Even this estimate is denied by many of the best French clinicians, notably Rist and Sergent of the French army.

While it is now accepted that the distribution of cases suggested by Dr. Biggs is incorrect, his total estimate probably falls short of the actual number since subsequent investigation by the commission sent over at his suggestion has shown a much greater number of cases among the civilian population of France.

This Commission for the Prevention of Tuberculosis in France, directed by Dr. Livingston Farrand, was sent to that country by the International Health Board of the Rockefeller Foundation. The work of the commission during its first eighteen months of activity has been very ably reported by Dr. James Alexander Miller<sup>1</sup> of New York, who was associate director of the commission and who was in charge of all medical activities carried on by the organization. His reports show that while Dr. Biggs' estimate of the number of cases among the prisoners of war in Germany and among the repatriés was essentially correct, there was no evidence to substantiate the tales of inoculation of prisoners of war with tuberculosis. The work of the commission did show, however, a "truly serious situation" (Miller) among the civilian population. A marked increase in the tuberculosis death rate cannot be proven by French statistics, yet it is generally believed by those who have been engaged in this work that the war has quite materially increased the incidence of tuberculosis, most notably amongst the young women. This may be attributed to the tremendous overcrowding and subsequent poor housing of those people, especially the refugees; to overwork under severe mental strain, combined with the effect of work under high pressure at an unaccustomed occupation. It is interesting to note that the tuberculosis rate in this country is said to have risen, perhaps as a direct result of a year of unprecedented industrial activity. Probably underfeeding did not play a very important part until the

last few months, except among the refugees. Alcoholism has proven to be a real factor in certain districts, notably in Normandy and Brittany.

Investigation of the means for combating tuberculosis existing at the outbreak of the war showed a few tuberculosis dispensaries, among which may be noted especially the Leon Bourgeois dispensary in connection with the Laennec hospital under the direction of Dr. Leon Bernard and Dr. Kuss. This is one of the model dispensaries of France, exemplifying the best French effort in this line. There were several large sanatoria and seaside institutions for the care of surgical tuberculosis, but unfortunately during the war many of these were closed to the civilian sick and operated exclusively as military hospitals. There were in all twelve popular sanatoria in France (Besançon<sup>2</sup>), in which there were but four hundred and sixty-two beds for tuberculous adults. A very important work was that of the Oeuvre Grancher, through which children predisposed to tuberculosis were placed in homes in the country. But, except for the few dispensaries, the work was all centralized in a few large institutions, the exact system which in this country we have been attempting to avoid during more recent years.

Furthermore, there was practically no effort being made by the Service de Santé leading toward the prevention of tuberculosis; there was no compulsory registration of tuberculosis, no public health laboratory facilities for diagnosis, no propaganda. The total budget for the protection of the public health was ridiculously small and forty percent of it was spent for disinfection. With a few exceptions the visiting tuberculosis or public health nurse was unknown in France.

Investigation on the part of the commission early showed the need of (1) an intensive campaign of educational propaganda, (2) the maintenance of dispensaries for diagnosis and care of certain cases and such educational work as could be accomplished through these avenues, (3) the maintenance of laboratories for diagnosis and (4) the erection and equipment of preventoria, sanatoria and hospitals. Since the work of the Rockefeller Foundation is essentially educa-

tional such work as came under the first three headings was assumed by the Commission while that connected with the erection, organization and maintenance of hospitals and sanatoria was assumed by the Bureau of Tuberculosis of the American Red Cross under the direction of Dr. Charles William White of Pittsburg, succeeded by Dr. A. H. Garvin of Ray Brook Farm, New York.

The educational work of the commission was directed by Prof. Selskar Gunn of the Massachusetts Institute of Technology. This was accomplished by the aid of a corps of popular lecturers, using lantern slides, charts, etc., and finally there was organized a very complete model town exhibit which was transported on auto trucks. This exhibit made week stands in different French towns, usually opening on a Sunday with some special attraction. At the same time these communities were flooded with picture postcards so attractive as to carry the truth home. Later on, special public health instructors were placed in the schools and the pupils were made public health crusaders, to no mean effect.

The commission operated two dispensary units, one serving one *arrondissement* or ward of Paris and one the department of Eure et Loire. The former consisted of a central dispensary to be fully equipped for the diagnosis and dispensary care of all types of tuberculosis and for a limited amount of general dispensary work, and as in each case the plant was also used by the Children's Bureau of the American Red Cross all child contacts were under careful supervision. In addition to this central dispensary there were three other dispensaries differing only in that there were to be no dental clinics or x-ray installations, this work being cared for in the central dispensary. These also came under the central administration.

This nineteenth *arrondissement* has a population of about two hundred and fifty thousand and a tuberculosis death rate of four hundred and sixty-nine, surpassed only by one other *arrondissement*, the twentieth, which had a death rate of five hundred and thirty-two. The latter was not selected for

these activities because it already had one dispensary operated by the French.

A most important part of this work was the training of visiting nurses under the direction of Miss Elizabeth Crowell of the Association of Tuberculosis Clinics of New York. Here French nurses were trained in this branch to be sent later to other similar organizations in that country. This work indicated the necessity of home relief in many instances which was supplied through the French charity organizations supplemented frequently by funds from the relief bureau of the American Red Cross.

The physicians in attendance at these dispensaries were, to begin with, Americans with especial training in tuberculosis. These were rapidly replaced by French physicians trained in these dispensaries or in French institutions. This group of dispensaries in Paris was designed not so much to care for a group of sick people as to furnish a demonstration of a plan of organization and operation which might later be carried out by the French in other parts of the city and in other cities. Likewise a group of dispensaries was organized in the department of Eure et Loire to indicate a plan of organization and operation adaptable to a rural community. The population of this department is two hundred and seventy thousand, composed of a mixed agricultural and industrial class. This was a typical department, not presenting extremes either of social or health conditions. Its tuberculosis death rate was one hundred and sixty-one, which contrasted with those of the departments of Haute Loire (ninety-seven) and Seine et Loire (three hundred and forty-four), shows that it lies at neither extreme. This was selected because it is contiguous to the department in which lies Paris, where the central organization was located, and for the reasons noted above. Chartres, a town of twenty-five thousand population, is the geographical and political center of this department with one other industrial town of ten thousand, Dreux. The remainder of the two hundred and seventy thousand people are found in small towns and communes. From a small beginning of three dispensaries with the central dispensary and



laboratory at Chartres there are now about twenty-six in this one department. Many of these are served by physicians and nurses residing in one of the larger towns who go out to the smaller places once or twice each week. The general plan of operation was the same as in Paris, an exception being the extension of laboratory service, since there were practically no such facilities otherwise available. Hospital accommodations were provided for a limited number of patients by the Bureau of Tuberculosis of the American Red Cross.

In addition to these two demonstration units the Commission and the American Red Cross have assisted in and supplemented the efforts of various French organizations throughout France, the plan being to make a local survey of the community, furnish physicians and nurses, if needed, to organize the dispensary, and in many cases to furnish sufficient funds to insure the continuance of the work until it was on a sound and permanent footing. In addition to this most valuable work the American Red Cross met an urgent need during the past year in caring for a considerable number of cases requiring hospital care, either in its own institutions or as in some cases by furnishing funds for their care in certain Swiss institutions. The Bliney sanatorium near Paris under the direction of Dr. Ginard was completed in accordance with its original plans and presented to the French, the funds being furnished by the American Red Cross. Also near Paris was a charming old chateau which was remodeled by the American Red Cross into a sanatorium for two hundred patients, with an additional building for a smaller number of predisposed children. These two were known as the "Edward L. Trudeau Sanatorium". A cottage colony nearby, consisting of portable houses to care for two hundred persons was requisitioned by our army on completion and probably will never be used for the purpose designed. It was intended to house about fifty to seventy-five families in the cottages, each cottage being surrounded by a small garden and ground sufficient for light farming.

It is perhaps too early to talk of results, but some are already evident. Of very great

importance is the evidence of appreciation and the cooperation of the French physicians amongst such men as Letulle, Kuss, Rist and Sergent, and also those men who exert a much greater influence upon the people—the country and small-town practitioners. Many of the latter were trained in and later assisted in the dispensaries. These men already see the awakening of a public health conscience where none existed before. They see the nonmedical people of the community taking an active part in this work.

The dispensaries have been growing steadily, with an attendance last spring of eight to one thousand inhabitants in the department of Eure et Loire. The work has assumed such proportions that the French are already providing means for the continuation of a volume of work they would have considered impossible four years ago. In 1915 they provided four hundred and sixty-two beds for adult tuberculous invalids; at this time the number is eleven thousand.

There is now a well organized Association of Visiting Nurses of France operating a special training school for nurses entering this field.

During the past year a permanent commission of tuberculosis has been very active in moulding public and medical sentiment. Each weekly meeting of the Academy of Medicine from March 11 to May 20 was dedicated primarily to a discussion of Obligatory Declaration of Tuberculosis, with a final indorsement by a vote of forty-six to twenty-one. This measure had been introduced into the chamber of deputies as a proposed law January 16, and for many weeks it called forth editorial comment in the daily papers of Paris. At the present time a separate and thoroughly reorganized ministry of health is being proposed. A recent letter from Paris states that all of the work in Paris has been taken over by the municipality and it is only a question of time when each of these organizations will pass from American direction to efficient and permanent French control.

Someone has stated that France has made in four years the progress for which we have required twenty-five. Perhaps with this tremendous momentum and the leader-

ship of Letulle, Bezançon, Kuss, Sergeant and others of like calibre we may some day look to France for guidance in this great crusade.

#### References.

1. Miller. National Tuberculosis Association Report, Fourteenth Annual Meeting.
2. Bezançon. Bulletin de l'Académie de Médecine, March 11, 1919.  
606 Majestic Building.

## News Notes

The Colorado profession bears the unusual distinction of numbering among its membership three presidents of national associations: Dr. Hubert Work, president of the American Medical Association; Dr. Chas. A. Powers, president of the American Society for the Control of Cancer; Dr. Gerald B. Webb, president of the National Tuberculosis Association.

The death of Dr. Frank R. Coffman, April 27th, in Los Angeles, came as a complete surprise to his Denver friends and associates. Dr. Coffman has been a member of the Denver County Society since 1907. He was at one time health commissioner of Denver, later vice president of the State Board of Health. Death is said to have been due to heart failure.

Dr. G. W. Barrett has located in Englewood for practice there and in the neighboring district of South Denver.

Dr. Chas. J. Howard, who has been receiving *Colorado Medicine* at Salt Lake City, Utah, advises us of his change of address to 4301 West Forty-ninth avenue, Denver.

Dr. J. W. S. Cross, formerly of Denver, is now a major in the Medical Corps in the U. S. army and stationed at Camp Normoyle, San Antonio, Texas, having recently been transferred from Fort Bliss.

Dr. R. E. Jones of Fort Morgan has announced his retirement from practice.

Dr. John S. Chase has announced his release from the service and the reopening of offices at 601-602 Majestic building, Denver; practice limited to eye, ear, nose and throat.

Dr. R. G. Smith left for New York on April 24th for six weeks' special work in genito-urinary diseases.

Dr. A. J. Markley of Denver was present at the American Dermatological Association, Asheville, N. C., in the latter part of April, and participated in the program.

Dr. A. J. McDonald has removed from Leadville to Aspen, where he will take over the position of surgeon for the Citizens' Hospital.

Dr. Franklin H. Martin, in his capacity as secretary-general of the American College of Surgeons, was in Denver in April for the purpose of establishing a state section of the national organization.

A fund of \$3,000 is to be raised at Greeley to finance a free dispensary and a community nurse. The movement has the support of the Weld County Medical Society.

Dr. O. S. Fowler of Denver attended the meeting of the Radiological Society of North America at New Orleans in April, where he participated in the program with a paper on the Radiographic Differentiation of Ureteral Obstruction from Certain Intraabdominal Lesions.

The following short biography of Dr. Adolph

Zederbaum is quoted from the Denver Medical Bulletin of May 8, 1920: "Word has just come from Los Angeles that Dr. Adolph Zederbaum, for many years a practitioner in this city and an honorary member of our medical society, passed away last Saturday, May 1st, after an operation, at the age of 73. Frail of frame and long a sufferer from tuberculosis, his indomitable will power and moral courage defied the Grim Reaper past the allotted span of three score and ten. He was a remarkable character in many ways and his life was rich in experiences and diversity of color by travel and sojourn in various countries. Born in Odessa, the son of a distinguished Russian Jewish journalist, known to fame as the founder of the first Hebrew periodical, he enjoyed the advantages of a liberal education in St. Petersburg. His father's home was the rendezvous of the most celebrated Russian literati and intellectual leaders of the day. Dr. Zederbaum finished his medical course at the University of Berlin, and soon after was invited to come to New York by Dr. S. J. Meltzer, a classmate, whose researches at the Rockefeller Institute are familiar to the medical profession. Associated with Dr. Meltzer for a number of years, he acquired a large practice, but an acute extension of a pulmonary tuberculosis compelled him to remove to Denver about 1895, where he quickly gained a host of friends and patients. In our city he made himself beloved by everybody who came in contact with him, whether layman or colleague. Physicians who had the privilege of spending an evening with him cherish the event as one of the most pleasant episodes of their life. His charm of manner, his wealth of interesting anecdotes, his wide erudition and quaint humor shown in his inimitable causerie left an impression on his hearer which could never be effaced. He wrote fluently in several languages and contributed a number of valuable papers to domestic and foreign medical journals. Our library is indebted to him for some bound volumes of Russian and German medical periodicals. His particular ability, aside from diagnosis, lay in his wide command of the materia medica—nowadays perhaps a too much neglected field. He believed in treating the patient rather than the disease, and his resourcefulness in relieving pain and alleviating suffering by a wide armamentarium culled from the pharmacopeia of many lands, coupled with his kind manner and personal magnetism, won the love and confidence of his patients and helped him carry them through a critical illness. He was one of the founders of the sanatorium of the Jewish Consumptives' Relief Society, and his well-written articles in the literature issued by this organization brought considerable financial support to their cause. A breakdown after two decades of active practice led him to spend a year in Davos, Switzerland, where he recuperated his strength. But soon after his return to Denver another failure in health impelled him to seek relief in Southern California. In spite of his age and being a stranger, he quickly gained a wide circle of friends and patients, who idolized him as did his former admirers in New York and Denver. The profession of Denver deeply mourns the passing of this lovable and kindly gentleman and scholar. Requiescat in pace."

Dr. Florence Sabin, a Colorado woman who was formerly a teacher in Denver, has the distinction of having had her portrait presented to the Johns Hopkins Medical School, as she is the first woman to be made a professor in that institution. Dr. Sabin graduated from Johns Hopkins in 1900, later serving as a member of the anatomical staff. In



1917 she was given a full professorship in histology.

Dr. James Rae Arneill of Denver received the signal honor of being offered the chair of medicine at the University of Michigan. It is understood that he has not found it expedient to accept the offer.

Following is a list of Colorado registrants at the A. M. A. meeting, New Orleans, arranged under date of registration:

Tuesday, April 27, 1920:

Amesse, John W., Denver.  
Black, Herbert A., Pueblo.  
Bush, J. H., Sterling.  
Grant, W. W., Denver.  
Hall, J. N., Denver.  
Jackson, Edward, Denver.  
LaRue, C. L., Boulder.  
Lingenfelter, G. P., Denver.  
McKinnie, L. H., Colorado Springs.  
Magruder, A. C., Colorado Springs.  
Moleen, George A., Denver.  
Rothwell, Augusta M., Denver.  
Shands, H. R., Colorado Springs.  
Strickler, David, Denver.  
Van Poole, G. M., U. S. Army.  
Wasson, W. Walter, Denver.  
Webb, Gerald B., Colorado Springs.  
Work, Hubert, Pueblo.

Wednesday, April 28, 1920:

Finnoff, William, Denver.  
Gengenbach, F. P., Denver.  
Gilbert, Oscar M., Boulder.  
Hopkins, John R., Denver.  
Jayne, Walter A., Denver.  
Matlack, J. A., Longmont.  
Mullin, William V., Colorado Springs.  
Simon, Saling, Denver.  
Shivers, M. O., Colorado Springs.

Thursday, April 29, 1920:

Burdick, Ward, Denver.  
Carmody, T. E., Denver.  
Chipman, J. C., Sterling.  
Cryer, W. H., Colorado Springs.  
Shere, Oscar M., Denver.

Friday, April 30, 1920:

Chipman, J. C., Sterling.  
Wescott, Orville D., Denver.

#### El Paso County News.

Dr. G. B. Webb was elected president of the National Tuberculosis Society at a recent meeting held in St. Louis.

Dr. S. W. Schaefer read a paper entitled "Silence in the Treatment of Tuberculosis" at the meeting of the National Tuberculosis Society.

Dr. C. F. Stough has gone to California for a vacation.

Dr. G. A. Boyd has been called East on account of the serious illness of a brother.

Dr. W. V. Mullin is expected home May 1st from a trip to the Panama Canal and New Orleans.

Drs. H. R. Shands and M. O. Shivers attended the A. M. A. meeting at New Orleans and the Mississippi state meeting.

Dr. H. C. Goodson has returned from the meeting of the National Tuberculosis Society at St. Louis.

**THE COLORADO STATE MEDICAL SOCIETY INAUGURATED THE MOVEMENT FOR A PSYCHOPATHIC HOSPITAL, THE LEGISLATURE APPROVED THE MEASURE BY THE PASSAGE OF THE STATUTE; IT LACKS FINANCIAL APPROPRIATION. HENCE, THE PETITION. RETURN THE FILLED PETITION PROMPTLY; SEND FOR MORE IF YOU CAN USE THEM.**

## Medical Societies

### BOULDER COUNTY.

Following are the scientific proceedings of the **Boulder County Medical Society** at meetings held on March 8 and 15 and April 8, 1920:

March 8th. **Dr. Carbon Gillaspie: Diseases of Sacro-iliac Region and Hip, with Case Reports.** Two cases were presented for demonstration: a man with bilateral ankylosis of the hip joint and another with a sacro-iliac lesion (right), following strain.

Sacro-iliac joint conditions, congenital dislocations of the hip joint and lumbo-sacral conditions were taken up and many interesting x-ray pictures shown.

He gave a very good discussion of tuberculosis of the hip, bringing out especially the difference in treatment in children and adults. In children the best results are obtained by general supportive treatment with local extension. In adults operative treatment for pain, abscess, etc., is more satisfactory.

March 15th. **Dr. E. B. Queal: Points on Drugs for Stomach Effects.** Atropine is used to reduce the tone of the stomach as a whole, to lessen the spasmodic contraction in pylorospasm or in hour-glass contraction. Full doses of 1/64th to 1/50th gr. are necessary for results.

Pepsin is the most powerful drug we possess when favorable conditions of acidity of about 1½ percent HCl exist; then it digests three thousand times its own weight of albumin. It is rendered inert, however, in alkaline medium or in excess of acidity above 1½ percent, and for this reason its value is limited.

HCl is of value in cases of achylia with diarrhea. It should be given in doses of 20 minims of a ½ percent solution with pepsin gr. 3, taken with a meat meal and repeated in one hour. HCl also stimulates secretion of pancreatic juice and bile.

Bitters will be found to have a real value in promoting the appetite in many cases of subnormal nutrition and achylia.

Bismuth subnitrate is of value in hyperacidity cases in that it neutralizes the acidity without causing a subsequent rise in acidity, as do the other alkaline remedies.

April 8th. **Dr. O. M. Gilbert: Two Unusual Case Reports:**

#### PULMONARY TUBERCULOSIS IN AN INFANT.

Louise H., 11½ months old, came under observation about February 15, 1920, on account of digestive disturbance, but, unfortunately, was not examined at that time; was seen again on March 25th, when the following history was obtained and findings noted:

History of cough, vomiting, emaciation, fever, slight diarrhea and sometimes constipation. Family history: Older sister, with whom she has been in close contact, has advanced tuberculosis of the lungs; mother has had some bronchial trouble. Previous history: Was large, healthy baby till about seven or eight weeks ago, when she contracted a cough, supposed to be due to measles, although she never broke out; the mother says she was never quite so husky after bowel trouble six months ago; has coughed and lost weight ever since and for the past month has vomited and had no appetite; for several weeks has fretted as if in pain and has had fever every day. Temperature 101. Pulse? Coughing and fretting.

Examination: Well developed, but emaciated;

skin dry and wrinkled; eyes large and bright. Takes little interest in surroundings; somewhat sensitive to handling. Head slightly retracted, but can be brought forward with care. No Kernig nor Brudzinski. Abdomen slightly distended and generally sensitive. Heart rapid, but negative. Lungs: Right, slight increase in root dullness posteriorly with harsh breath sounds and a few crackling râles about the root on deep inspiration after crying, otherwise hyperresonant; left, marked dullness to the fourth space and 6 v. s. with vesiculo-tympany below this; throughout the upper lobe there is marked bronchial breathing and a most extraordinary transmission of voice, and medium coarse consonating râles throughout the same area; these shade off toward the base into non-consonating and more atypical râles and the vesicular murmur becomes evident but somewhat distant.

An x-ray of the chest showed the left lung heavily mottled throughout, most marked in the upper lobe, with apparently several cavities in the upper, middle and lower portions. Diaphragm high and stomach distended. Right lung showed miliary-looking shadows throughout with a small patch in the extreme apex.

Intracutaneous tuberculin test was negative.

The baby died on March 31, 1920, and autopsy revealed the following: Marked involvement of mesenteric lymph glands, two slight tuberculous ulcerations of the ileum. Slight tuberculosis of the spleen and one kidney and a very marked fibrocaseous tuberculosis of the entire left lung with several cavities, and typical miliary tuberculosis of the right lung.

The case is extraordinary on account of the chronic excavating type of the disease in an infant of one year.

#### ARTIFICIAL PNEUMOTHORAX IN ACUTE PULMONARY ABSCESS.

On July 12, 1917, J. W. D. of Paris, Texas, was referred to us by Dr. McCuiston of that city on account of a lung abscess, which had existed since November of the preceding year.

We found the patient coughing up a large amount of purulent sputum every day, losing weight and running a temperature of 100°-102°, and upon examination we verified the diagnosis of an abscess in the upper lobe of the right lung behind the second and third ribs. This was surrounded by an area of infiltration, which, upon further observation, seemed to be spreading. The patient became rather acutely ill, temperature rising to 103.5°. It occurred to me that if I could collapse that lung I might obliterate the abscess, and if I were unable to collapse it wholly I might, at least, check the extension of the inflammatory process.

At this time I did not know of pneumothorax having been resorted to in acute pulmonary abscess, but upon searching the literature I found a report by Tewksbury of Washington of two cases similarly treated, reported in the *Journal of the A. M. A.* on March 10, 1917, and a case of interlobar empyema connecting with the bronchus reported by Greer in the *Journal of the A. M. A.* of April 1, 1916. So, with the encouragement of these two isolated reports I decided to make the attempt, which I did on July 19, 1917. We gave altogether eight treatments extending over about six weeks, and were able not only to stop the extension of the process, but also to reduce very decidedly the amount of expectoration and to bring the pulse and temperature to approximately normal, but the adhesions to the chest wall in the region of the second and third ribs were so firm

that later injection served only to compress the outlet of the abscess and increase the symptoms for a day or two to such an extent that we decided to discontinue the treatments, and on December 8th a rib resection with drainage was done, after which the patient made an uneventful recovery and has now remained well for two and a half years.

About this time I learned that Dr. Gerald B. Webb of Colorado Springs had used the same method in five cases of chronic pulmonary abscess, with complete success in three.

While the results in this case were by no means completely satisfactory, we did succeed in preparing the way for the drainage of the abscess and thereby increased the patient's chances for recovery.

On October 5, 1919, I saw Miss Beatrice Bailey of Lake Village, Ark., who had a pulmonary abscess in the lower and middle lobes of the right lung, which had followed the aspiration of a cockle-burr one and one-half years previously. An attempt had been made by Chevalier Jackson to remove the cockle-burr about nine months previously, but it had failed, although the patient succeeded in coughing up the burr a few weeks afterwards. However, the abscess had continued, and now the greater part of that lung was involved in an infiltrative, chronic, inflammatory process and the patient was very ill, the temperature running up as high as 103.8°. By this time Tewksbury had reported his further use of the method in the *Journal of the A. M. A.*, February 2, 1918, reporting here ten more cases, twelve in all, showing a complete recovery in eight of them, temporary improvement in two and two deaths.

While his cases were all comparatively acute, and this one had now become chronic, it seemed worth a trial, since the patient was in poor condition for an operation and the abscess was very deeply located; so, on November 3, 1919, we began artificial pneumothorax, which gave considerable relief of symptoms, particularly the fever and toxemia, but we soon met with such marked resistance from adhesions that we were forced to give it up. Soon after this the patient developed a pyothorax, which must have had some slight communication with the abscess, for upon draining of this pyothorax the abscess symptoms improved very markedly for a time, but have now returned, though they are much less severe than formerly. However, the patient will require surgical drainage.

In this case we feel that we have benefited the patient only to a very moderate degree, but have succeeded in tiding her through the acute process to a time when she is in much better condition for surgical interference.

Simon and Swezey of Denver (*American Review of Tuberculosis*, April, 1918) reported a case of lung abscess in a tuberculous patient which was successfully treated by artificial pneumothorax.

On August 20, 1919, through the courtesy of Dr. Hetherington and Dr. Spencer, we saw Albert Potts, eight years old, who had three weeks previously aspirated a tooth in the course of a tonsillectomy. The child's condition was very critical, he having an abscess of the lower lobe of the right lung and a very acute inflammatory process extending out therefrom. The x-ray showed very plainly the tooth in the midst of this. By very skillful bronchoscopy the tooth was removed by Drs. Carmody and Spencer. The patient's condition continued quite critical and his temperature was 105° when we again saw him in consultation. Since his condition was too desperate for opera-



tion, we decided to try a lung collapse as an earlier resort, giving only 150 cc. of filtered air for the first injection, followed by 200 cc. the next day and from 200 to 250 cc. on alternate days until five treatments had been given, and then every three or four days until complete collapse was attained—in about three and a half weeks. After the second injection his temperature fell markedly, and after the fourth came practically to normal, and remained so except for a slight flare-up on about the tenth day. We kept the lung in a complete state of collapse for eight weeks and then permitted it to expand, watching it carefully with the x-ray.

In four weeks more the lung was completely expanded, as shown by the radiograph, and a subsequent picture taken after it had been expanded for two months shows the lung apparently normal. The child has now remained perfectly well for four months.

#### COLORADO OPHTHALMOLOGICAL.

The regular meeting of the **Colorado Ophthalmological Society** was held in Denver on February 21, 1920, Dr. E. E. McKeown presiding.

H. R. Stilwill, Denver, presented a negro aged forty years, the vision of whose right eye had been failing for three years, and entirely lost for the past five months. The tension was normal, but the condition was that of glaucoma simplex, the entire optic disc being depressed about 2 mm. (7 D.). The left eye was normal. Discussed by Edward Jackson.

H. R. Stilwill, Denver, exhibited a specimen of bony formation which had been found surrounding the optic disc in an atrophic eyeball. The eye had been injured by the explosion of a dynamite cap twenty-four years previously.

D. H. Coover, Denver, presented a woman aged thirty-five years in whom for two years there had been exophthalmus and failing vision, the cause of which had not been discovered. Temporary improvement had several times been obtained by operations on the ethmoid and sphenoid sinuses. Discussed by Melville Black and W. A. Sedwick.

D. H. Coover, Denver, presented a man aged fifty-nine years who, two days after a straightforward cataract operation, had developed a severe streptococcal infection involving the area of the incision. The case had shown rapid improvement after the injection of diphtheria antitoxin, although the vision of the eye was practically lost. Discussed by Melville Black, Edward Jackson, H. R. Stilwill and W. C. Finnoff.

C. O. Eigler, Denver, presented a woman aged twenty-four years who had become completely blind at eight and a half months of her first pregnancy. There had been a great deal of hemorrhagic exudate, which had gradually disappeared. The vision had improved to R. 5/15, L. 5/30. Discussed by Melville Black.

W. C. Finnoff, Denver, presented a woman aged thirty-three years whose ocular changes had included blurring of vision of the right eye, slight vitreous haze on the temporal side, and in the macular region a flat white exudate and a finely granular hemorrhage into the retina about one and three-quarter disc diameters across. The case, probably one of retinal tuberculosis, had been treated with small doses of tuberculin. Discussed by E. R. Neepner, Melville Black and W. C. Finnoff.

W. C. Finnoff, Denver, presented a man aged seventy years who had become suddenly blind

from vascular disturbances in the retina due to arteriosclerosis. There were three apparently venous aneurisms along the upper temporal vein of the left eye.

W. C. Bane, Denver, presented a boy aged twelve years whose right eye had received perforating injuries through the cornea and sclera from the explosion of a .22 caliber rifle. The vision of the eye was reduced to light perception.

W. C. Bane, Denver, presented a man aged fifty-six years whose vision had gradually failed as the result of arteriosclerotic changes in the retina of each eye. The changes included a number of new bloodvessels which obscured the disc of the left eye and some hemorrhages. The urine showed sugar, albumin, and hyaline and granular casts.

WM. H. CRISP, Secretary.

The regular meeting of the **Colorado Ophthalmological Society** was held in Denver on March 20, 1920, Dr. Edward Jackson presiding.

E. T. Boyd, Denver, presented a case of recurrent iritis in a man of about 58 years. So far, it had been impossible to trace the cause of the condition. Discussed by Melville Black.

W. A. Sedwick, Denver, presented a probable case of lethargic encephalitis in a youth of 15 years. The condition had started in an apparent attack of influenza in January, 1920, but there had been an attack of double vision in December, this condition persisting through the January attack but being less marked at the time of report. The tendency to fall asleep, which had been a marked symptom since the January illness, still persisted. Discussed by G. L. Strader and E. E. McKeown.

D. A. Strickler, Denver, presented a man aged 61 years who had a persistent corneal disturbance which seemed probably secondary to a herpes zoster affecting the forehead and scalp on the same side. Several corneal areas had from time to time become denuded of epithelium, and had healed slowly. Discussed by W. A. Sedwick, C. A. Ringle and Edward Jackson.

A. C. Magruder, Colorado Springs, presented a man who had lost his right eye, and into whose orbit fat from the abdominal wall had been transplanted for prosthetic purposes. A severe infection with staphylococcus albus had developed simultaneously in the implanted fat and throughout the abdominal wound.

J. M. Shields presented for W. M. Bane, Denver, a man aged 31 years who had come complaining of loss of vision in the upper portion of the left visual field; and each of whose eyes showed an area of choroiditis, that in the left eye corresponding to the defect of the visual field.

Melville Black, Denver, presented a man aged 29 years in whom high hyperopia and convergent squint were associated with an extreme neurasthenia which had created special difficulty in treatment. An eastern oculist, after one or two operations on the ocular muscles to correct the squint, had needled the lens of the right eye in order to put this eye out of use, but without relief of the symptoms. The patient was apparently voluntarily producing a nystagmus, and refused to wear correcting glasses. Discussed by H. R. Stilwill, Edward Jackson and E. R. Neepner.

W. C. Finnoff, Denver, presented a young man who had a neuroretinitis.

J. R. McCaw, Denver, presented a case of uveitis, further details of which will probably appear in a later report.

WM. H. CRISP, Secretary.



## CITY AND COUNTY OF DENVER.

The regular meeting of the **Medical Society of the City and County of Denver** was held May 4, 1920, Vice President W. A. Sedwick presiding.

The society having adopted at a previous meeting the recommendations of the Committee on Public Policy regarding taking action concerning the policy of the proposed new Presbyterian hospital in the control of its practicing staff, a further report of the committee was called for. The report was to the effect that the chairman of the board of managers of the proposed hospital had been notified of the society's conviction that the control of hospital practice should rest in the medical advisory board and not in the board of managers, and that he had acknowledged receipt of the communication and stated that it would be acted upon at the next meeting of the board.

The following scientific program was given:

Exhibition of Patient—Case of Obliterating Endarteritis.....Morris Printz, M.D.

Discussion opened by Cyrus Pershing, M.D.

A Case of Referred Stomach Symptoms.....  
.....H. S. Canby, M.D.

Experiences With Fracture-Dislocation of the Cervical Spine.....S. B. Childs, M.D.

Discussion opened by Geo. B. Packard, M.D.

Tuberculous Meningitis.....Roy P. Forbes, M.D.

Case Report: Tuberculosis of Kidneys, Ureters and Bladder.....A. L. Beaghtler, M.D.

X-ray plates shown by H. P. Brandenburg, M.D.

Autopsy findings by A. W. Stahl, M.D.

Discussion opened by Oliver Lyons, M.D.

## EL PASO COUNTY.

The regular monthly meeting of the **El Paso County Medical Society** was held in the grill room of the Elks' Home Wednesday, April 14th. Forty members were present.

Dr. Rozell McGlathery was elected to membership. Dr. R. K. McClanahan was admitted to membership by transfer from the Las Vegas Medical Society.

The amendment to raise the society dues from \$8.00 to \$20.00 was defeated.

The following program was given:

1. Cancer of the Colon.....Dr. H. R. Shands

Discussed by Drs. Hanford and McKinnie.

2. Electricity and Modern Medicine.....  
.....Dr. B. B. Grover

Dr. Shands presented a case of exophthalmic goitre with ligation of the superior thyroid artery. A thyroidectomy was done and the patient has gained thirty-five pounds in weight. He also presented a case of carcinoma of the large intestine in a woman seven months pregnant. The patient was operated upon (two-stage operation), went to full term and was delivered of a healthy baby.

Dr. Miller presented a case of a young man with an aortic regurgitation apparently resulting from tonsillitis.

C. E. RICHMOND, Secretary.

## Book Reviews

**Aphasia and Associated Speech Problems.** By Michael Osnato, M.D., Associate in Neurology, Columbia University; Consulting Physician, Manhattan State Hospital and Central Islip State Hospital; Neurologist, Italian Hospital; Assistant Visiting Physician, Kings County Hospital; Assistant Chief of Clinic, Vanderbilt Clinic Department of Neurology. Published by Paul B. Hoeber, New York, 1920. Octavo, 191 pages. Price, \$2.50.

The author states in his introduction that "the influence of the cerebellum in connection with speech has been almost entirely neglected. In these pages an attempt is made to ascribe to the cerebellum an important place in the exhibition of that exclusively human faculty."

The author reviews the commonly accepted theory of cerebral localization, in which theory different parts of the cortex are assigned special functions in the faculty of speech. He then proceeds to attack the theory, and succeeds in making out a fairly strong case against it.

In his attack on the localization theory he cites and largely supports Marie's "lenticular quadrilateral" theory, and he argues with Marie that aphasia is a defect of intelligence as well as a defect of speech. He cites cases of his own to show that impairment of intelligence may accompany aphasia.

The author then proceeds to assail the current theory of the psychology of speech, and he maintains that speech is possible without the existence of auditory, visual, or kinesthetic mental images. He argues that an actor can say "I hate you" and imply the opposite meaning by the modulation of the voice. He also avers that a class of students will derive impressions from a lecture according to their education and general individual intelligence, quite apart from their preference for any form of mental imagery. These arguments seem quite unconvincing, and the author omits to explain the most elementary fact—why the speaker happens to employ the English language when he is supposed to have no mental imagery of any language in his mind.

Broadly one may state that Osnato's "Aphasia and Associated Speech Problems" establishes a healthy skepticism regarding the function of Broca's convolution, but one can scarcely concede that a strong case is presented for the cerebellum, and, as the author himself admits, his contribution "is based in no instance on any original anatomical investigation".

C. S. B.

**The Principles and Practice of Roentgenological Technique.** A new book by Dr. I. Seth Hirsch, Director of X-Ray Departments of Bellevue, Fordham, Harlem and Gouverneur Hospitals of New York, 1920. Bound in cloth. Quarto size. 260 pages, 348 illustrations and 19 tables. \$10.00 per volume. American X-Ray Pub. Co., Dept. L, 127 West Twenty-sixth Street, New York City.

When a book on roentgenological technique is presented, the first thought is that of disappointment, the disappointment borne by so many predecessors—books where confused masses of material are given. As modestly outlined in his preface, Dr. Hirsch has followed the ordinary sequence of activities involved in making a roentgenological examination. Anyone attempting roentgenological diagnosis or therapy will do well to familiarize himself with the material furnished. The apparatus, the principles of physics, and the application



of these are clearly described and well illustrated. It is an orderly book and understandable.

In Part I the author takes up the principles of electricity, generators, the tubes and their effects. A bit of interesting history is given. It is pleasing to note the space allotted to the focal spot of the tube and the elimination of secondary radiation.

In Part II the principles of technique are applied to fluoroscopy, stereoscopy, radiography and photography. The positions used in radiography are especially well described and illustrated. An exposure table is given which is fairly well brought up to the present needs. W. W. W.

**Education in War and Peace.** By Stewart Paton, M.D., Lecturer in Neurobiology, Princeton University; Lecturer in Psychiatry, Columbia University; President Eugenics Research Association. Published by Paul B. Hoeber, New York, 1920. Octavo, 105 pages. Price, \$1.50.

*Education in War and Peace* is a reprint of three lectures delivered by the author on three unrelated occasions. The lectures are somewhat lacking in coherence, and they can scarcely be said to support the title, which is rather fanciful.

The book appears to be an attempt to explain social unrest and "personal inadequacy" along Freudian lines, the causal factor suggested by the author being "wishful thinking". Wishful thinking would appear to be the main cog in the wheel. Just how it becomes the main cog is not at all clear, for the author writes with the lack of lucidity that characterizes the Freudian mode of thought, and one feels that the book offers little more than vague gropings and ill-formulated thoughts, which are here and there supported by peremptory opinions.

The book may be of interest to the reader who believes in the divine inspiration of Freudianism, but to one who will accept conclusions only from premises it offers very little. C. S. B.

**The American Illustrated Medical Dictionary.** By W. A. Newman Dorland, A.M., M.D., F.A.C.S.; Member of the Committee on Nomenclature and Classification of Diseases of the American Medical Association; Editor of "American Pocket Medical Dictionary", tenth edition, revised and enlarged. W. B. Saunders Company, Philadelphia and London, 1920. Plain, \$6.00. Indexed, \$6.50.

The reviewer purposely put this dictionary to the test on the latest medical terms he could think of and was not disappointed in the result—they were all there and were properly defined and considered. "Dorland" has become a standard of dictionary excellence and this new edition is satisfying in every respect—flexible cover, want of unwieldiness, plain print, accurate editing and comprehensiveness. There are new and elaborate tables of arteries, muscles, nerves, veins, etc.; of bacteria, ptomaines and leukomains, weights and measures, eponymic tables of diseases, operations, signs and symptoms, stains, tests, methods of treatment, etc.

The dictionary is complete.

**Modern Surgery: General and Operative.** By J. Chalmers DaCosta, M.D.; Samuel D. Gross, Professor of Surgery, Jefferson Medical College, Philadelphia, Pa. Eighth Edition, Revised, Enlarged and Reset. Octavo of 1,697 pages, with 1,177 illustrations, some of them in colors. Philadelphia and London: W. B. Saunders Company, 1919. Cloth, \$8.00 net.

The author of this text is one of the leading

diagnosticians of the entire medical and surgical world. The work is from the pen of one of the able literary men of our land and every sentence is a delight. There is not a single poorly written sentence in the entire work. The author writes as he talks—in a pure literary style. It is safe to say that this *Modern Surgery* contains almost every possible bit of information the student or surgeon may wish to find. The index is extremely comprehensive, diagnosis is fully dealt with, and all accepted treatment is given in detail. There is no other work in print which gives so much information in the same number of pages.

J. M. S.

**Manual of Obstetrics.** By Edward P. Davis, A.M., M.D., F.A. C.S., professor of Obstetrics in The Jefferson Medical College, Philadelphia. Second Edition, revised; 477 pages, 163 illustrations. Philadelphia and London, W. B. Saunders Company, 1919. Cloth, \$3.00.

This is written by a man with a large personal experience who can be brief and at the same time clear and concise.

The author covers general obstetric treatment as well as operative and surgical technic in a lucid fashion.

After quite a thorough reading one is impressed with how well the subject of obstetrics has been covered in so small a space and feels the book should be of use to the general practitioners and students. H. S. S.

**Pathogenic Bacteria and Protozoa.** A text-book for students of medicine and physicians; by Joseph McFarland, M.D., Sc. D., Professor of Pathology and Bacteriology in the University of Pennsylvania; Pathologist to the Philadelphia General Hospital; Fellow of the College of Physicians of Philadelphia. Ninth Edition, revised; with 300 illustrations, a number in colors. W. B. Saunders Company, Philadelphia and London, 1919. Cloth, \$4.75.

Professor McFarland's work is a standard text of merit, and this new edition is no exception. We have used this book for a number of years and are thoroughly familiar with it. The author deserves much credit for the thorough manner in which he has prepared this revision under stress of military service.

His text has always been characterized by the concise, yet complete manner in which he treats each phase of bacteriology. The book can be recommended without reservation to all who are interested in the subject. W. B.

#### NEW AND NONOFFICIAL REMEDIES.

During March the following articles were accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Abbott Laboratories: Elixir Barbital Sodium.  
Antoine Chiris Company: Barbital-Chiris; Barbital Sodium-Chiris.

Gilliland Laboratories: Schick Test (Gilliland).  
Hollister-Wilson Laboratories: Anipoules Corpora Lutea Soluble Extract-Hollister-Wilson; Ovarian Residue-Hollister-Wilson.

Vitalait Laboratory of California: Condensed Vitalait.

#### NEW AND NONOFFICIAL REMEDIES.

During April the following articles were accepted by the Council on Pharmacy and Chemistry

of the American Medical Association for inclusion in New and Nonofficial Remedies:

Abbott Laboratories: Anesthesin-Abbott; Aromatic Chlorazene Powder; Tablets Dichloramine-T-Abbott.

Diaprotein Company: Diaprotein Prepared Casein Flour.

Gilliland Laboratories: Streptococcus Vaccine (Gilliland).

Heyden Chemical Works: Acetylsalicylic Acid-Heyden.

Hollister-Wilson Laboratories: Capsules Corpora Lutea Desiccated-Hollister-Wilson; Tablets Corpus Luteum Desiccated-Hollister-Wilson; Pituitol Obstetrical; Pituitol Surgical.

Lederle Antitoxin Laboratories: Pollen Antigen-Lederle (Spring Type).

Lowy Laboratory, Inc.: Solution Arsphenamine-Lowy.

Radio Chemical Corporation: Radium Bromide (Radio Chemical Corp.); Radium Carbonate (Radio Chemical Corp.); Radium Chloride (Radio Chemical Corp.); Radium Sulphate (Radio Chemical Corp.).

E. R. Squibb & Sons: Bacillus Bulgaricus-Squibb.

### The Modern Hospital Building.

The Modern Hospital, having long since outgrown its former quarters because of the increasing service it is being called upon to render in the hospital field, has removed its offices to its own building at 22-24 East Ontario street, which will hereafter be known as The Modern Hospital Building.

In establishing its headquarters in this building, The Modern Hospital is adding another to the growing group which is establishing Chicago's reputation both here and abroad as the center of medical and hospital organization and education in this country. Within a few blocks stands the building long occupied by the American Medical Association, while the new home of the American College of Surgeons is only a stone's throw away.

The Modern Hospital Building will be a veritable center of national hospital, health and welfare activities. It will house not only the offices of The Modern Hospital, the Modern Hospital Year Book, and Modern Medicine, but also the national headquarters of the American Hospital Association and the National Catholic Welfare Council (Division of Social Action). What this will mean in the way of more expeditious interchange of thought and activity and greater ease and co-operation between the number of national organizations at work in the hospital and kindred fields can readily be seen. Other developments are pending which, when consummated, will greatly enhance this center to all who are interested in these fields of work.

### Dangers of Infection from Various Common Articles Contaminated by Tubercle Bacilli.

Lawrason Brown, S. A. Petroff and Gilberto Pesquera of the Trudeau Sanatorium report the results of inoculation into guinea pigs of various substances and washings of objects that are ordinarily presumed to be contaminated with tubercle bacilli. Dust collected by a vacuum cleaner from the rug of a living room in the sanatorium was negative; swabbings from the mouthpiece of the sanatorium public telephone were negative. Washings of spoons, forks, glasses and cups that had been used at meals by patients and had not been cleansed were positive; those of knives and dishes

were negative. Washings of the hands of patients who had coughed upon their hands were positive; those of the hand of a second person who had shaken hands with a tuberculous patient and those of a doorknob rubbed by a contaminated hand were negative. Saliva collected from patients just before coughing was positive. Patients with positive sputum kissed Petri dishes; washings of the dishes kissed immediately and ten minutes after coughing were positive; those twenty minutes after cough, negative. The wash water of a toothbrush was positive, as were the fly specks of flies fed on tuberculous sputum.—American Review of Tuberculosis, December, 1919, vol. III, No. 10.

### War's Effect on French Children.

The effect of the war on the children of France is shown in a recent report submitted by the American Red Cross headquarters at Lille. The figures are furnished by the Municipal Bureau of Hygiene.

The city had a pre-war population of 200,000. The birth rate has shrunk from nearly 4,900 in 1913 to only 600 in the past year. The figures by year follow:

1913.....	4,885 births
1914.....	4,540 births
1915.....	2,155 births
1916.....	640 births
1917.....	600 births
1918.....	600 births

This indicates a total loss of 15,000 births during the war.

The death rates according to ages are not known, but since the armistice a survey has been made in all public and private schools with a view to obtaining appropriate food for all children whose development has been retarded and to place all those who show signs of tuberculosis in the care of institutions and welfare organizations. Of 18,000 children in school at Lille at the time of the armistice, over 6,000 had to be sent to hospitals or convalescent centers.

This survey indicated that sixty percent of the school population showed signs of arrested development, while about forty percent gave evidence of ganglionic or pulmonary tuberculosis. In one typical school, out of two hundred and ten examined, only one was in normal health.

**A Pharmaceutical Clearing House.**—The Council on Pharmacy and Chemistry of the American Medical Association is carrying on a work of great usefulness to doctor and layman. Actuated by no selfish interests, condemned by designing sharks who wish to exploit their frauds, and ridiculed by the jealous manufacturers of pharmaceuticals, the council pursues the even tenor of its labors, playing no favorites, exposing frauds wherever found, and awaiting not the stamp of approval, of praise, or of gratitude from anyone. This "clearing house" is the medium through which physicians may learn the unvarnished, straightforward truths about proprietary products. A plea of ignorance of proprietary articles used does not excuse the physician, since it is his duty to follow the course of instruction offered by the council and to appeal to this clearing house for information.—Southern Medical Journal, Sept., 1919, p. 581.



# Colorado Medicine

OWNED AND PUBLISHED BY COLORADO STATE MEDICAL SOCIETY

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## Editorial Comment

### POPULARIZING PUBLIC HEALTH.

The unprecedented appropriation of forty million dollars for the current expenses of the U. S. Public Health Service during the next fiscal year furnishes a fitting commentary, not only on the inestimable value of the work and worth of this great federal bureau, but also on the public awakening manifested since the war toward the significance of preventive medicine.

Twenty years ago the operations of the service involved an outlay of barely a million, and its functions were confined to the care of disabled seamen, the maintenance of foreign and domestic quarantine and the scientific investigations conducted by the Hygienic Laboratory. The brilliant achievements of its personnel in the eradication of plague and yellow fever; in the suppression of malaria, hookworm disease and pellagra and in the standardization of biological products, was followed by a period of extraordinary activity during the war, when extra cantonment sanitation called for increased forces and unusual responsibilities. Many of the senior officers were detailed to the medical corps of the Army or the Navy. At the conclusion of hostilities, Congress transferred to the Public Health Service the care of all disabled soldiers and sailors, numbering at the present time close to seven hundred thousand men, together with various hospitals, camps, cantonments and sanatoria selected for the care of the more serious cases. The medical section of the War Risk Insurance Bureau is supervised by an officer of this corps, who rendered distinguished

service in France and, later, at one of the great ports of embarkation.

It seems apparent that the increasing confidence and trust placed in this body of trained sanitarians is but a reflection of the general sentiment throughout the country that in the prevention of disease scientific medicine finds its broadest and its most logical field of endeavor. The growing belief that public health is a purchasable commodity and that within reasonable limits a community may control its own death rate, is in striking contrast to the fatalistic views of our forbears. Press and pulpit are everywhere encouraging the dissemination of knowledge concerning the natural history of disease. Schools and colleges are stressing the study of hygiene, and our dispensaries are organizing classes in nutrition, where underfed and improperly fed children may receive the training in dietetics denied their parents in the "good old days" when the mortality rate followed the temperature in each succeeding summer.

The American Medical Association, in recognition of the popular interest in State Medicine, has revived its ante-bellum custom of dedicating the Sunday prior to the date of the annual meeting, to public health discussions. For those who have viewed with amazement and perhaps some concern the expansion of sectarian medicine, and the exploitation of charlatans in the name of religion, these facts must be reassuring. Hygeia, the youngest daughter of Aesculapius, is in the saddle to stay!

J. W. A.

PSYCHOPATHIC HOSPITAL PETITIONS, WHETHER COMPLETELY OR INCOMPLETELY FILLED, SHOULD BE CERTIFIED TO AND SENT TO DR. MOLEEN AT ONCE. THEY MAY BE RECEIVED AS LATE AS JUNE 25TH.

## AN INTERNATIONAL HEALTH OFFICE.

Through modern developments in communication and transportation the nations of the world are intimately bound together by intercourse and commerce. It therefore seems unwise to entertain the idea that we in America can stand aloof from the problems of other countries which if left unsolved must in time extend to us. We, no doubt, with characteristic Yankee shrewdness want to have our finger in any pie which may be set out later for us to eat. As Colorado takes an interest in the suppression of an epidemic in New York, if only for the selfish purpose of preventing its spread westward, so the United States is going to have an interest, and an active one, in the fighting of disease in other countries, whether or not a purely humanitarian motive be a considerable element in prompting that interest. If we do not join the League of Nations, it is to be hoped that at any rate our Public Health Service can co-operate with the League in its public health work. For let us realize fully that the League of Nations exists (including membership of all the European countries except Russia and the Central Empires, Portugal and Roumania; and all South American countries except Ecuador) and that its Council is already at work to protect vast populations from starvation and disease. Under Article XXIII of the Covenant it is imposed upon League members "to take steps in matters of international concern for the prevention and control of disease," and accordingly the Council has established an International Health Office.

Mr. Raymond B. Fosdick, who was appointed under-secretary-general of the League of Nations in May, 1919, having resigned later when it became apparent that the United States was not likely to become an early member of the League, has since kept in touch with the activities of the Council and has outlined those activities very clearly in the June Atlantic Monthly. He has this to say of the International Health Office: "Operating through an international committee of public health experts, and representative of world-wide medical opinion, it will maintain its permanent staff

at the seat of the League. Its purpose, as defined in the carefully matured plans of the League's committee which has been working on it, is to bring the administrative health authorities of different countries into closer relationship with each other; to organize means of more rapid interchange of information and swifter action in matters where immediate precautions against disease are required; and, finally, to provide machinery for securing or revising international agreements for administrative action in matters of health. Thus it will act as a clearing-house for regulations, orders, and official reports, and will issue bulletins and statistics on questions of public health; it will collect and distribute information as to the existence and prevalence of such diseases as cholera, plague, yellow fever, typhus, small-pox, and influenza, and will call special conferences of the health authorities of neighboring countries to determine the official action to be taken; it will promote international arrangements for the prevention of the spread of epidemics in undeveloped or more primitive countries and colonies, in cases where joint action by more than one power is necessary; and, finally, it will work for the revision of international sanitary conventions, so that they may be brought up to date on questions of epidemiology, and adjusted to post-bellum political geography.

"It is this kind of work—in the interests of the human family—that the League was created to perform. Its primary purpose is to lead in the fight against common enemies of mankind, such as disease and hunger."

In such an undertaking, the medical profession can surely see no need for the drawing of national lines and it is to be hoped that, if public health workers of the United States are not seated in the new International Health Office by right of membership, they will at any rate be glad to respond if their services should be sought, and be willing to shoulder America's share of the task with which the world is confronted.

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**TITLES AND SYNOPSSES OF PAPERS TO BE READ AT THE ANNUAL MEETING IN SEPTEMBER SHOULD BE SENT PROMPTLY TO A. J. MARKLEY, CHAIRMAN, 430 METROPOLITAN BUILDING, DENVER.**



## *Current Comment*

### **THE WORK OF THE AMERICAN SOCIETY FOR THE CONTROL OF CANCER.**

The writer gladly accepts the courteous invitation of the editor of *Colorado Medicine* to write briefly on this subject, and it is with much pleasure that he is able to record the fact that this work is going on well and in a conservative way.

The chief aims of the Society at present are the diffusion of knowledge among the laity regarding the early symptoms of cancer and the bringing of the members of our own profession to a better realization of their responsibilities. At this time the average person seeks advice one year after noticing the first symptoms of cancer; it is desired to reduce this period as nearly as possible to one day. Further, the medical attendant must give suitable advice when consulted.

Organization of the states is progressing—thus, Dr. Robert B. Greenough of Boston has taken the regional directorship for the New England states, he appointing a state chairman in each, subcommittees, and the like; Dr. J. C. Bloodgood of Baltimore has taken the same for Maryland, Virginia and Delaware; Dr. C. Jeff Miller, for Louisiana, Mississippi and Alabama; Dr. F. J. Taussig, for Missouri, Arkansas, Oklahoma and eastern Kansas; Dr. W. D. Haggard has taken the state chairmanship for Tennessee; Dr. F. L. Hupp, for West Virginia; Dr. J. W. Long, for North Carolina; Dr. Cathcart of Charleston, for South Carolina; Dr. Linderberger of Louisville, for Kentucky; Dr. George R. White of Savannah, for Georgia, etc. Dr. Miles F. Porter is working actively in Indiana; Dr. A. Srotti in Ohio; Dr. J. W. Wainwright and Dr. John G. Clark in Pennsylvania, etc. The Society had an exhibit at the recent meeting of the American Medical Association. At this time (May 27) a fourteen days' intensive cancer campaign is being carried on in New York City with diagnostic and operative clinics, addresses to the profession, "talks" to the laity in school houses and distribution of literature. "Cancer Days" are being held in Scranton, Pa.,

and other Pennsylvania cities. (It is felt that these Cancer Days and Weeks will prove most valuable., Moving pictures for the profession and for the laity are contemplated.

An extended pamphlet on symptoms and advice for the laity has been carefully prepared by a committee of the directors of the Society (chairmanship of Dr. Francis Carter Wood) and published and distributed in large numbers by the New York State Board of Health, Dr. H. M. Biggs, state health commissioner. This is being published by the Society, and it is hoped that it will be widely distributed by all State Boards of Health. It is hoped also that the Society's very authentic pamphlet for the profession (recently sent to the profession throughout Colorado) will be very widely distributed.

Such, in brief, are some of the present activities of the Cancer Society. It is with pleasure that the directors of the Society acknowledge the marked courtesy of the editor of *Colorado Medicine*. It is realized that such opportunities as those furnished by him are of the greatest possible value to the campaign being waged by the Society.

CHARLES A. POWERS, M.D.,  
President, American Society for the Control of Cancer.

### **MORE ABOUT IMPROVEMENT IN HOSPITAL SERVICE.**

Every state medical association in the United States has its part in the present universal movement for the betterment of hospital service. Every association now has its own committee which is studying the hospital situation in its state in cooperation with the Council on Medical Education of the American Medical Association. The council has obtained, through reports, correlative committee has been supplied with the data relating to the institutions in its state. Through their closer familiarity with the hospitals, or by inspections, the state committee is in excellent position to verify these data and to make a reliable report to their state association and to the council.

For convenience and in order to secure uniformity of reports from the forty-eight committees regarding the relative efficiency

of hospitals, blanks furnished by the council. These lists are subject to frequent revision so that names of other hospitals can be added to all hospitals in the country and each hospital which are considered worthy of correspondence and other methods, data relating to A. B. and C, grouped also according to the special class of patients cared for. This rating is not for publication, but will aid the council in the preparation of a list of hospitals to be included as soon as sufficient improvements are made to warrant their being approved. State committees are urged to promptly report to the council any instances where such improvements have been made.

The purpose of the work is to aid the hospitals in providing for their patients the best possible service, and in no way to injure those which are honestly endeavoring to provide such service. Toward this end every possible assistance will be given to individual hospitals by the council or by the local state committee in establishing such changes as will make them worthy of approval.

Forty-two state committees have reported progress in connection with the latest survey, and thirty-four have turned in reports regarding hospitals inspected and graded, which have more than half the entire bed capacity of all general hospitals in the country. Meanwhile, this work of the council is not conflicting with or duplicating the splendid work being done by the American College of Surgeons, the Catholic Hospital Association, the American Hospital Association or other agencies. In fact, the work of each agency is evidently complementing that of the others.

At the New Orleans meeting recently, the House of Delegates of the American Medical Association registered an intense interest in the improvement of hospital service and authorized the trustees to generously provide for that work. This work has been so intimately related to that of the Council on Medical Education that the name of this council was changed to the "Council on Medical Education and Hospitals."

In brief, further enlargement of hospital work by the American Medical Association

is assured, and in this work each state is destined to have an important part. Toward this end each association is being urged to make its hospital committee permanent and to retain on it those who will not only be active, but who also can do the work in the most efficient and unbiased manner.

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### THE COLORADO CONGRESS OF OPHTHALMOLOGY AND OTOLARYNGOLOGY.

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This year the Ophthalmological and Otolaryngological Societies have decided to hold their Congress on July 23rd and 24th, and with that end in view are issuing invitations to practitioners of the specialties in every state in the Union.

Until last year the congress has been under the auspices of the Ophthalmological Society only, but the success of the joint meeting last year was so satisfactory that it has been decided to make the Congress of Ophthalmology and Otolaryngology a permanent institution from now on. Its success is doubtless due to several things, but it is certainly logical that a congress sponsored by the best men in our local profession and held during a period of the year when many of our professional brethren are taking their vacations in our mountains should be very well attended and should attract many of the larger lights in the specialties.

The committee, appointed jointly by the two societies, consists of the following: Chairman, Edward Jackson; Melville Black, J. J. Pattee, T. E. Carmody, Robert Levy, William H. Crisp, Edward R. Nepper; secretary, Harry L. Baum. It is the desire of the committee that all ethical practitioners of the specialties shall feel themselves free to attend the meetings and, if possible, to contribute to the program. Adequate entertainment will be provided for out-of-town men, and it is anticipated that the meeting will prove one of the most successful of its kind.

Anyone desiring a place on the program should communicate with the secretary at 264 Metropolitan building not later than July 10th.



## THE WHIRLIGIG OF TIME.

Thirty-five years ago Eastern Colorado was a sparsely settled, arid plain, presenting the aspects of frontier life. What was then Weld County comprised a vast territory, which has since been split into seven large counties. In those days there dwelt two physicians in that large and lonely domain, who ministered to the ills of the pioneer and cowpuncher of the plains. Though their respective habitations were separated by miles of vacant tracts, they often met in consultation, and together made many a trip to a distant ranch to usher in a new citizen or reduce a fracture.

Isolated in this primitive region, far from the crowded haunts of men and thousands of miles removed from medical centers, these humble Aesculapians little dreamed that a third of a century hence they would occupy the center of the stage at the august national congress of their colleagues.

A dramatic episode, entirely unknown to the House of Delegates, took place when Dr. J. N. Hall placed the name of his lifelong friend, Dr. Hubert Work, as a candidate for the presidency of the American Medical Association.

Colorado physicians are proud of the achievements of these two sons of the Centennial State, who, from humble beginnings, have risen to eminence, the one as a distinguished clinician, the other as the incumbent of the highest position within the gift of the medical profession. P. H.

## SUMMER MEDICAL COURSES AT BOULDER.

An announcement of the summer quarter appears in the University of Colorado Bulletin, March, 1920. Physicians of Colorado who desire postgraduate study near home may well consider the courses offered in the field of medicine. These are only enumerated below, space consideration forbidding descriptive data, fees, etc.; there are two terms, June 14 to July 21 and July 22 to August 28.

1. General Bacteriology—First term.
2. Practical Bacteriology—First term.

3. Biochemistry—Quarter.
4. Blood Chemistry—Term or quarter.
5. Human Anatomy—Quarter.
6. Histology—Quarter.
7. Embryology—First term.
8. Anatomy of the Central Nervous System—Second term.
9. Clinical Laboratory Methods—Quarter.
10. Short Laboratory Course for Practitioners—June 14 to July 2; repeated August 9 to August 27.
11. Technique of the Wassermann Test—July 5 to August 6.
12. Advanced Pathology—Hours to be arranged.
13. Ophthalmology—graduate course at Denver, June 14 to July 24. Courses in advanced optics at Boulder and Denver, July 26 to August 14, for advanced students of Ophthalmology.

## Original Articles

### DISCREPANCIES BETWEEN THE CLINICAL SYMPTOMS AND LABORATORY FINDINGS IN SYPHILITIC DISEASE OF THE NERVOUS SYSTEM.\*

GEORGE A. MOLEEN, M.D., Denver.

After so long an experience as has been afforded since the adoption of the Wassermann reaction as a laboratory routine, it has become pretty generally accepted that a positive serum makes strong the suspicion of existing or active syphilis, admitting, however, a number of familiar exceptions. The negative return of blood-Wassermann technic allows a somewhat more extended list of exceptions, even with the use of the several modifications and varieties of antigens.

While this has been true of blood serum, it has developed *pari passu* that in the examination of the spinal fluid much more conclusive and reliable evidence is to be had. Indeed, it has been no uncommon experience to find a negative blood serum in the presence of definite clinical symptoms of

\*Read at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1919.

syphilitic invasion; but with the spinal fluid it is different—three of the four phases of Nonne, or the colloidal gold reaction of Lange have revealed the conclusive and convincing evidence.

In a series of six hundred and twenty-four cases of syphilis in all stages, Fildes, Parrell and Maitland (*Unsuspected Involvement of the Central Nervous System in Syphilis*, Arch. N. & P., Vol. 1, No. 2, p. 231, 1919), the cerebrospinal fluid was found abnormal in eighty percent in which no clinical sign nor symptom of nervousness was present, although twenty-nine cases had over one hundred cells per cubic millimeter and nine had over three hundred.

The same authors conclude that a negative Wassermann reaction in the serum does not in every instance exclude the possibility that there is active syphilitic disease of the central nervous system; also, they infer that the pleocytosis is quite constant and that the examination of the cerebrospinal fluid is essential in every case of syphilis.

A case of considerable interest in this connection was reported by A. W. Hoaglund and E. F. Prioleau (*U. S. N. Med. Bull.*, July, 1919, Vol. 13, No. 3, p. 547). It is that of a man of thirty on whom a diagnosis of syphilis had been made in 1915, and who had been treated one year with mercury and two doses of salvarsan, the second year with mercur, and with protiodid of mercury the third year. He was accepted as physically qualified for service in June, 1918, and the Wassermann reaction reported negative the following week; three months later, beginning with headache, he showed definite signs of cerebral tumor in the occipital region. Blood - Wassermann reaction, negative. Spinal fluid showed slight globulin increase; seventy cells; colloidal gold, 0012322210; and a negative Wassermann reaction. In spite of this, the diagnosis of cerebral syphilis was maintained and treatment instituted accordingly without benefit, the patient dying two months later. The necropsy revealed, besides the slight exudative meningitis, a gumma filling the center of the left occipital lobe from which microscopical specimens evidenced typical syphilitic changes.

With the view of placing on record cases showing a conflict between the clinical condition and the laboratory observations, rather than of discrediting in any sense the worth of this valuable laboratory diagnostic aid, the cases which follow are presented.

The following laboratory technic was carried out by Dr. Ward Burdick, who spared no effort to avoid error in results:

All sera examined were obtained at the laboratory and were free from hemoglobin. Specimens were inactivated at 55° C. for thirty minutes. Native anti-sheep amboceptor was removed, if its presence was detected. The complement-amboceptor titration was carried out for each test separately, and to it was added a definite quantity of the serum to be examined, i. e.: .1 cc. of the patient's serum was added to each titration tube, this being the amount used in the Wassermann routine. Having thus adjusted all of the reagents to each other and having determined the amboceptor unit, 2.5 units were used in testing. Anti-sheep hemolytic system used. Hemolytic cells, complement, serum and antigen controls were carried out with each test. Each specimen of serum was examined with five antigens, namely: cholesterinized alcoholic extract of human heart muscle; cholesterinized alcoholic extract of guinea-pig heart muscle; simple alcoholic extract of human heart muscle; simple alcoholic extract of guinea-pig heart muscle; acetone-insoluble lipoids of human heart muscle. All tubes were made to measure 2.5 cc. in volume. Incubation was made by water bath. Results were stated with reference to the degree of hemolysis after the incubation.

Spinal fluids were obtained by means of a platinum needle, to minimize traumatism occasioned by corrosion. The first portion of fluid was rejected and only that which was found to be free from blood was used in examinations.

The tubes were cleansed with bichromate fluid to insure against contamination with organic matter.



All specimens were promptly removed to the laboratory, the cells counted at once and the colloidal gold technic carried out. Globulin was estimated by the Ross-Jones method. The original Wassermann technic was followed, using alcoholic extract of human heart muscle as an antigen; all fluids were titrated (using .05, 0.1, 0.2, 0.4, 0.6, 0.8, 1.0, 1.5, and 2 cc.) All tests were carried out at the same time under similar conditions and the result determined according to the degree of hemolysis after final incubation. Incubation one-half hour by means of water bath was employed.

**Case I:** Mrs. J. B. S.; a housewife of 29 years, whose sole cause for complaint was progressive loss of weight, slight excitability and nervousness; who in the course of routine examination evidenced strong positive Wassermann reactions in both blood and spinal fluid, on which account careful investigation of the nervous system was made. Family history was negative, except that one sister had pulmonary tuberculosis. There were no previous illnesses other than tonsillar infections for which the tonsils were removed ten years previously. Menstrual history was negative and there had been no pregnancies. General physical condition was good at the time of examination October 14, 1918. The patient was an intelligent appearing woman of good development and color. Muscular power was well preserved and equal; no disorder of movement, either on voluntary attempt or in association. Gait and station were unimpaired with the eyes open or closed, except for a slight unsteadiness on closing the eyes which, while constant, was neither marked nor beyond control at any time. The reflexes were slightly increased and equal on both sides and without clonus in the upper as well as the lower extremities. All forms of sensibility were prompt, readily localized and equal. There was no alteration in the ocular balance and no nystagmus. Pupils were 3 mm., equal, definitely circular in outline and responded promptly to light, shade, distance and convergence, and consensually. Optic fundi were normal on either side; the left being

slightly congested owing to the necessity of a correction for refractive error. Hearing was 20/24 in either ear and the fork tests were negative. The urine was negative, but for a vague trace of albumin, attributable to the few pus cells found microscopically. Blood pressure: systolic, 120 mm., diastolic, 80 mm. Blood enumeration: R. b. c., 5,600,000; W. b. c., 8,500; Hemoglobin, 68 percent (Hellige); differential picture, normal. The blood examination on April 20, 1918, resulted in a positive (+++++) Wassermann in all fixation tests and cholesterinized antigens; after alterative tonic treatment a second examination on June 12, 1918, returned the same findings, and again on September 9 of the same year. On October 9, 1918, the spinal fluid examination revealed the pressure to be slight; fluid transparent; cells, 9; globulin, markedly positive; Wassermann, positive (+++++) with 2 cc. of spinal fluid; colloidal gold, 0122100000.

When the meager clinical evidence here is weighed with the laboratory findings, this case would seem to call for a pre-tabetic classification. It must be admitted, however, that with slight static instability, and the suggestion of a diminished postural sense, minimized as these are by the occurrence of increased tendon reflexes and the normal pupillary responses, they cannot be disregarded in the presence of the spinal fluid findings. In much the same manner the following case offers a more perplexing seeming conflict.

**Case II:** A miss (M. F.) of 26 years, occupied in clerical work, was referred because of the findings in the blood and spinal fluid and with no complaint other than slight "nervousness"—the same being present since informed of the laboratory reports. While born in Nebraska, she had been in Colorado for two years as a precaution, in view of the presence of tuberculous glands. The family history is negative throughout; the mother, father, four brothers and three sisters being in good health. Previous history included only the milder exanthems, and outside of jaundice five or six years ago she had been in good health and had sustained no injuries. She had always been slightly anemic. Menstrual history was

negative. There had at no time been headache, vomiting, numbness, urinary disturbance, or difficulty in locomotion, and but occasional slight distress after eating. On examination, made October 9, 1918, the patient was found to be anemic in appearance, blonde in type, showing no abnormality in physical or psychic responses, no tremors of the hands, lips or tongue; all voluntary movements, including those of the face, arms and legs, were well executed, and associated movements were well performed. In finger-to-finger and finger-to-nose testing, approximation of the fingers was accomplished with precision. Walking with the eyes open showed no unsteadiness; on closing them, slight unsteadiness; standing with the feet together, unsteadiness was also evident, but in a very slight degree and never beyond control. The reflexes were all present, equal, about normal in degree and with an absence of clonus. Superficial reflexes were not taken. Examination of general sensory perception failed to reveal disturbance in any form. The external ocular muscular movement was not impaired; no nystagmus. Pupils: 3 mm., equal and promptly responsive to light, distance and convergence. Optic fundi: R. normal; L. showed moderate hyperemia (best seen with -4D) probably on account of strain. Vision: O.D., 20/20; O.S., 20/30; this chart testing showed astigmatism evident in the left eye. Hearing: (watch = 24 in., 26/24 and 24/24 in the right and left ear respectively; fork tests were negative. Blood examination: hemoglobin, 70%; R. b. c., 5,072,000; W. b. c., 10,000, which were proportioned in lymphocytes, 23% polymorphonuclears, 76%; transitionals, 1%. Urine was negative but for slight trace of albumin, without casts, but with considerable epithelium and amorphous debris. Wassermann, positive (+++++) with cholesterinized alcoholic extract of human heart muscle; positive (+) with cholesterinized guinea-pig heart muscle antigen. After one month's treatment with sodium cacodylate injections, the blood-Wassermann remained unchanged. Following four injections of Novarsenobenzol, the serum became negative to all antigens on September 24, 1918. On October

6th, the spinal fluid examination was reported as follows: Clear; cells, 3; globulin, markedly positive; colloidal gold, 0122100000; Wassermann reaction, positive with 1 cc. of spinal fluid.

When one assumes the correctness of the Wassermann results in this case, it would seem to support the view that the cerebrospinal fluid participates in the bodies upon which this reaction is dependent without provoking symptoms to direct attention to the nerve structures.

The converse of the two preceding was encountered in the following observation:

**Case III:** W. W.; male; aged 42 years; married; salesman by occupation. Born in Wisconsin; in Colorado twenty-two years, but not on account of health.

Family history revealed mother living, in good health; father dead of paralysis; one brother dead (accidentally); three brothers and two sisters in good health; negative throughout.

Past history: Measles, mumps and chickenpox as a child. A chancre twenty years ago, which was treated about two or three months; no eruption. No accidents. Only unconsciousness was when he had a slight attack "called typhoid" six years ago. Denies gonorrhea. Drank liquor in moderation and admits intoxication. About four years ago began to have shooting pains in the legs; they have recurred at intervals since and in either foot. No girdle sense, headache, or double vision and no disturbance in gait were noticed. No vomiting without cause. Experienced pin-and-needle sensations.

Chief complaint was the pain, which began in the left thigh shooting downward into the heel—definite shooting character—momentary; free of pain between the lancinations. There had been some dribbling of urine. Except for pain, he was quite well. Appetite was good; no distress after eating. Bowels, variable (nothing). Sleep was good.

Examination, November 22, 1918, revealed a man of fair development, somewhat anemic in color, clear mentally, replying readily with clear enunciation, and lying in bed because of shooting pains in the legs, especially the right. No tremor. Movements of the



hands were well executed. He stood with the feet together and the eyes open, but swayed perceptibly on closing the eyes. Reflexes: knee jerk, R. absent and absent on reinforcement; L. the same; ankle clonus, R. and L. absent; tendo Achilles, R. and L. absent; deep reflexes of the forearm, R. and L. present; supinator jerk, R and L. present; biceps, triceps and deltoid, present; superficial reflexes, plantar R. and L. present, both flexor in type; Oppenheim, R. and L. flexor; compression of calf, R. and L. no action. Special senses: no sensory disturbance is made out. Eyes: external muscular movement was good in all directions and without nystagmus; pupils: R. 3 mm., L., 3.5 mm., both responded very feebly to light, but promptly to distance and convergence; optic fundi: R. nerve, moderately cupped; retracted; bluish-white cast with an absence of nutrient capillaries; L. the same; fields of vision: O.D., 20/20; O.S., 20/20. Hearing: not impaired to the speaking voice. Taste and smell: not examined. Clinical diagnosis: *tabes dorsalis*.

Serological reactions, November 25, 1918: Wassermann (serum); negative with five antigens (100 percent hemolysis). Spinal fluid: clear; slight pressure; cells, 7; globulin, negative; colloidal gold, 0000000000; Wassermann, negative (2 cc.). Under mercurial inunctions and potassium iodide the blood became positive with cholesterinized antigens only. Spinal fluid unchanged.

In the pre-Wassermann days, no question would have arisen on the disease syndrome here presented and in spite of this negative laboratory return, the clinical diagnosis of *tabes* challenges exclusion.

A similar experience with a paretic syndrome was observed in Case IV, the notes of which follow:

Here it will be seen that the clinical symptoms are too strongly suggestive of incipient paresis to be ignored because of the negative laboratory findings.

Cases of congenital syphilis in which there have been unmistakable signs with the admission on the part of the parents of having been infected, when submitted to laboratory investigation show a negative return in the serum and not infrequently in the spinal

fluid, but quite constantly one finds some change in the colloidal gold reaction, as the following case illustrates. It should be said, however, that this is more likely to be the case in congenital cases of slow evolution and which come under observation during the adolescent or beginning adult periods:

**Case IV:** G. M. G., aged 25 years. Occupied in assaying and sampling. Born in Philadelphia; has resided in New Mexico over two years, but not on account of health.

Family history was negative, except that one bother died of unknown cause and father admits specific infection when about twenty-six which was adequately treated according to advice. The previous history contained nothing relevant, except that he indulged in self-abuse at the age of fifteen or sixteen, and denied sex relationships and, consequently, venereal infection. Alcohol to the point of intoxication was admitted. His education had included a year in one large university, two years in a technical school of mines and a year at another university, from none of which did he graduate. He recognized some mental deficiency in himself and attributed this to indiscretions of youth and became despondent four or five years ago; he blamed himself, but without ideas of self-destruction, worried and occasionally wept. Denied confusion, but stated that morbid ideas and concepts obtruded themselves and were difficult to ignore. Impulses were admitted—these were stated by the father to include the wearing of corsets and fancy, feminine silk undergarments, refusing to state why this was done. He shunned society, made few friends and led a more or less secluded life. It was with difficulty that he was persuaded to go to his home in Philadelphia. His chief complaint was the fact that he was disturbed over trifles and was worried over his obsessions. He appeared as a slender man, five feet, eleven and one-half inches, weighing one hundred and thirty-six pounds, somewhat tanned, and replied promptly with a definite stammer. The upper central teeth showed definite Hutchinsonian cusps. The cranium was large, while the face was narrow. There was frequently a tremor of the lips in speaking which influenced the voice with a trem-

ulousness. There was no disturbance in voluntary movements. The reflexes showed a slight increase of the right over the left side. There were no clonuses. No disturbance in sense perception was made out. The external ocular movements were present in all directions with the exception that the left eye tended to rotate outward, for which complex compound cylinders, evidently combined with prisms, were worn. The optic fundi showed a fairly well outlined nerve-head with no abnormality in the retina and the vascularity was fairly good. Hearing was not impaired. Hemoglobin, 85 percent. Wassermann, negative to all antigens. The spinal fluid showed marked pressure; no turbidity, no cells, a trace of globulin; colloidal gold, 0121000000; Wassermann titration, negative with 2 cc. of fluid.

It would be difficult to exclude the influence of congenital syphilis in this case in the presence of the objective evidences and the definite history in the parent, even though they conflict with the laboratory findings. It should be observed, however, that here, as in many instances, the colloidal gold reveals a distinct curve within the syphilitic area.

By way of comparison with Case III, the case subjoined is added for the reason that it presented a much less suggestive clinical picture of tabes, and was submitted to the same laboratory examination on the day following, consequently with the same reagents and under the same conditions.

**Case V:** J. H. M.; male; aged 57 years; married and separated; a machinist by occupation; living at Prescott, Arizona, but not on account of ill health. He was born in Iowa. Family history was negative. Previous history includes measles, whooping cough and mumps in childhood. No other sickness until four years ago, when he had lumbago. Admits gonorrhea in 1911; a sore on penis twenty years ago called "herpes", described as "punched out with a rim around it"; this was followed the same year by a sore on the tongue; no treatment, except for about a month. Inflammatory rheumatism in 1891. Has had no serious injury and was never unconscious, except as a boy when he was kicked by a horse. Drank considerable liquor and has indulged to ex-

cess. About six years ago began to decline—fatigued with lessened endurance.

Present history: About five months ago began to see double; right eye turned outward without drooping of the eyelid; this condition has continued ever since, although he has worn prisms in the endeavor to correct it, and in spite of it he was able to continue his work until four days ago. No disturbance of movement; no numbness, no headache, no vomiting. Considerable trouble starting urine. Some shooting pains in the knees, noticed more especially before storms. Only trouble in walking (unsteadiness) occurs when the sound (left) eye is closed. No girdle sense. Appetite, good; no digestive disturbance; bowels are constipated (salts); sleep, good.

Examination, November 26, 1918, revealed a man of good development, ambulatory, replying readily to questions; voluntarily closing the right eye, because of diplopia and unsteadiness when the right eye was used alone or in association. The brow was evenly wrinkled. The eyes were closed with equal firmness. The mouth was retracted evenly. The palate was drawn slightly to the left on phonation. Grasp was well preserved in either hand, even though the right was without an index finger (amputated). Dynamometer, R. 300; L. 450. He walked well with the eyes open, but showed a widening of the base of progression; this was increased and accompanied by some unsteadiness on closing the eyes. He stood with the feet together and the eyes open, with little swaying, somewhat increased when the eyes were closed, but more marked when the left eye was closed and the right eye was used alone; this was less evident, however, when the hand covered the left eye than when it was closed voluntarily. Reflexes: knee jerk, R. and L. present; L. greater than R.; ankle clonus, R. and L. absent; tendo achillis, R. and L. present; deep reflexes of the forearm, R. and L., present; biceps, triceps and deltoid, present and equal; superficial reflexes, not taken. Special senses: there was no disturbance in sensibility. Eyes: at rest, divergent, although with effort they could be converged. On forced attention they could be rotated to either side and upward,



but on upward rotation they tended to diverge. There was a nystagmoid twitching which was fine and lateral in type. Pupils: large, R. 2.5 mm., L. 4 mm., both failed to respond to light, but responded to convergence and distance. Optic fundi: media, clear; R. nerve, poorly outlined, white in color; arteries, attenuated and nutrient capillaries wanting; L. the same, but not so marked in degree as the R. Vision: O. D., 20/80; O. S., 20/80+ (without correction); (with hyperopic correction) O. D., 20/80+; O. S., 20/20. Hearing: (speaking voice) good in either ear; tuning fork is heard best in the closed ear; aerial conduction was greater than bone conduction in either ear. Taste and smell, not examined.

The clinical diagnosis of cerebrospinal syphilis was tentatively made in view of the ocular paralysis.

Serological examination, November 26, 1918: Wassermann (serum): alcoholic extract human heart, 25 percent hemolysis; cholesterinized alcoholic extract of human heart, no hemolysis; cholesterinized alcoholic extract guinea pig heart, no hemolysis; acetone insoluble lipoids human heart, 75 percent hemolysis. Spinal fluid: Clear; slight pressure; cells, 122; globulin, positive; colloidal gold, 1234321000; Wassermann, positive (2 cc.) (Burdick).

It is important to note that on December 4, 1918, great improvement in the divergence was noted after use of mercurial inunctions.

The cases require no further comment since they present the facts as observed and evidence the purpose for which they are placed on record. They seem, however, to warrant the following deductions:

First—That definite syphilitic lesions of the nervous system may exist when the blood serum and spinal fluid show no complement fixation with the various modifications of standardized antigens.

Second—Positive returns in the blood and spinal fluid may be obtained in cases in which the clinical manifestations of nervous lesions are wanting.

Third—That most important are the changes in the colloidal gold reaction of Lange, and their presence is to be valued even in spite of negative Wassermann re-

actions in the serum or cerebrospinal fluid.

Fourth—The number of cells is to be regarded as contributory evidence, and especially important with reference to syphilis (or tuberculosis) when the greater percentage of cells are small mononuclear lymphocytes.

Fifth—That all laboratory procedures must be valued only as contributory evidence, as modifying, but not contradictory to, clinical phenomena—that the preponderating evidence belongs to clinical manifestations of disease.

Sixth—and finally—it must be clearly stated that in the absence of clinical evidence of a nervous lesion, the presence of a positive Wassermann reaction is not to be ignored, inasmuch as lipoids giving such a reaction may exist in the body fluids, probably derived from sequestered or isolated foci, without, or prior to, the occurrence of disintegrative lesions of the nerve structures.

325 Mack Building.

## DISCUSSION.

**W. W. Williams, Denver:** I feel that Dr. Moleen is to be congratulated on the carefully studied cases which he has just presented to us. He states that the laboratory work has all been done by Dr. Burdick. I am familiar with his technic and know his methods perfectly, and feel sure that the discrepancies that were brought out are not due to faulty technic. There are two points that Dr. Moleen read in regard to Dr. Burdick's technic which I would criticize. First, in performing the blood-Wassermann reaction he said he obtained the amboceptor unit by titrating in the presence of the patient's serum and then using two and one-half units in the test. When the amboceptor unit is obtained in that manner, I feel that two and a half units are an excessive amount to use. You are apt to overlook the moderately positive reactions. Another slight criticism is in the performance of the Wassermann with the spinal fluid and using a plain alcoholic extract as antigen. I think the consensus of opinion now is that you should use the most sensitive antigen you have, and that, without doubt, is one of the alcoholic extracts reinforced with cholesterol. Personal experience leads me to believe that the cholesterinized human heart muscle extract is the most sensitive antigen, but the guinea pig heart extract is almost as good. The reason for using this in the spinal fluid is that it contains no anti-complementary substances as are often found in the blood serum, and for that reason we can use ten or twenty times as much in the spinal fluid Wassermann test as we can in the blood Wassermann. But, waiving these two objections, I have no further criticism of the technic. Naturally, when I heard the title I thought Dr. Moleen would bring out much that would cause discussion from a laboratory man, but that is not the case. I agree to practically all of his conclusions. The



experiences that he has had in these discrepancies are not isolated; I think most of the laboratory workers and neurologists have these disputes. In paresis, ninety percent give a positive Wassermann in the spinal fluid, and usually in the blood. From the symptoms which Dr. Moleen has given it seems to me his diagnosis of paresis is a justifiable one, even with the negative laboratory findings. In the case that was definitely tabes with normal laboratory findings, the only explanation I have to offer is this, that in only about sixty percent of tabes is the Wassermann positive in the spinal fluid, so it is easy to assume that these cases of definite tabes with negative laboratory tests fall in the forty percent which show no serological spinal changes. The same explanation holds when we come to that large class of cases, cerebro-spinal syphilis, in which, for reasons hard to explain, the laboratory response is only positive in about thirty percent. One thing that interested me greatly was his third conclusion, in which he lays so much stress on the value of the colloidal gold reaction. To my mind, this is one of the most sensitive and reliable tests that we have for the spinal fluid. It is a test, however, that has not received the deserved recognition; it has not received the publicity it should have. Four years ago Dr. Burdick and I presented the results of about three hundred gold examinations at the state meeting, the paper appearing in *Colorado Medicine* for April, 1916. In that we drew the conclusion that the colloidal gold reaction is the most satisfactory test on the spinal fluid, not only from a diagnostic point of view, but from the prognostic as well. With the colloidal gold test certain of the reactions are so definite and so specific, especially in paresis, that a lot of people consider it pathognomonic. I do not believe that any of these biological reactions with the spinal fluid are pathognomonic, but it so often happens that you get such a definite picture in the gold test in paresis that it tells us more than any of the other spinal fluid tests. In conclusion I should like to say that I agree with all of Dr. Moleen's conclusions except the fifth, in which he says that the laboratory findings, that all laboratory procedure, should be considered only as confirmatory evidence and not contradictory to any of the clinical phenomena. It seems to me where we have very definite spinal fluid findings and positive Wassermanns with negative clinical findings that those cases will bear very careful watching, and in the vast majority the positive laboratory findings will be substantiated.

**Philip Hillkowitz, Denver:** I always like to hear what the clinician has to say in his appraisal of the comparative results of the clinical examination and the laboratory findings. I am sure we all owe a debt of gratitude to the essayist for the painstaking and thorough manner in which he has studied these cases, both from the clinical and the laboratory standpoint. It may, indeed, serve as a model for scientific physicians to follow. In the main, we are in accord with his conclusion. The title of the paper, of course, is one that will, at first glance, arouse the antagonism of the laboratory man, as it indirectly insinuates that laboratory findings are not always infallible. I am sure that there is no one in our craft that ever claimed freedom of error. It is true that the profession puts us on a higher pedestal than we deserve, and often expects wonders in diagnosis where our limitations are circumscribed. The clinician and the pathologist must coordinate their respective work. Only by weighing carefully the evidence each presents can a proper conclusion be reached. As the Wassermann reaction is a comparatively recent

test, it has not yet reached a stage, and I doubt that it ever will, where a diagnosis should be made from it alone, to the exclusion of the clinical findings. In other words, a negative reaction should not mislead the physician to rule out syphilis. The failure to get positive Wassermanns in cases of tabes has been pointed out many times. We get negative results in twenty-five to thirty percent of the cases. There is no reason to question the technic that was followed in Dr. Moleen's series of cases, as the laboratory work was carried out by a very competent colleague. The conclusion to be drawn is that a negative is not necessarily a proof of the nonexistence of syphilis, just as a failure to find tubercle bacilli is no proof of the absence of tuberculosis. However, I can only second what Dr. Williams has said, that in case we do find a positive Wassermann then, regardless of the fact that there are no clinical signs of syphilis present, or no symptoms from a neurological examination, the case should be considered with a certain amount of reserve as to the possibility of an infection. I am personally grateful to the essayist for bringing a matter of this kind up, because it stimulates thought, not alone among clinicians, but also the laboratory workers. After all, do we really know what the Wassermann reaction is due to? It is not a specific reaction in the sense of an antigen antibody reaction. It is purely a happy discovery; it just happens that when certain constituents are put together in a certain combination which have to be more or less controlled, you find hemolysis, or you do not find hemolysis. In one case we say it is negative; in the other, positive. It is not a specific test in the strict sense of the word, because we do not have to have the organs of a syphilitic person as an antigen—the organs of a normal human being or of a guinea pig will do. Nevertheless, though we are working empirically, the Wassermann reaction is one of the greatest boons to medicine and mankind. It often sets us on the right path in a difficult and obscure case.

**E. C. Webb, Cañon City:** I had a little experience with the Wassermann which it might be of interest to relate at this time. I happen to be the medical director of the state penitentiary. We take a Wassermann of every man as he comes into the institution. It was stated here this morning that forty-five percent of them are positive; that is only approximately so. Now, a number of times we have taken occasion to check up these reactions by taking two specimens from one man and bringing them in, or later taking another specimen from the same man, and the reactions did not coincide. They were sent to the State Board of Health. Just before I left home I was handed a card showing what some of these reactions were. We took fifteen men who had given a positive Wassermann in the past. They received no treatment. We took a Wassermann of them on the 23rd of September and seven of the specimens came back negative, five of them positive and two of them anticomplementary. Then, on September 24th, we took six men—new men who had just entered the institution—and took two specimens of blood from each man. These specimens were taken at the same time and under the same conditions—that is, the needle was placed in the vein and the blood run into two different bottles, one specimen sent in under the real name and one under an assumed name. We did this as a matter of checking up to see how reliable the test was. You see, we have done this several different times, and Dr. McKelvey has always thanked us. With the first man, one specimen was three-plus positive and the other specimen



was negative; the next man, one specimen was three-plus positive and the other specimen negative; the next man, one specimen negative and the other specimen hemolysis; next, one specimen hemolysis and the other three-plus positive; the next two, both specimens negative. It seems to me where you take two specimens at one time under the same conditions that those two specimens ought to give the same reaction, and if they do not I fail to see the value of the Wassermann.

**C. G. Hickey, Denver:** If Dr. Matthews were here he would be very much pleased to discuss the matter. As I did not make the Wassermanns, I naturally don't know anything about it, and the only man that would know anything about it is Dr. Matthews.

**Dr. Moleen (closing):** As you might imagine, I feel myself quite fortunate, even if I did fall, alone, into the hands of the laboratorian. It has been said by the first speaker that it was generally the experience to find the discrepancies between the clinical symptoms and the laboratory findings. I quite agree with that, but it was for the purpose of bringing before this society that which I did not believe to be of common knowledge that I undertook to report these cases in more detail. Of course, in the case of the state penitentiary, I have nothing to offer in explanation, but I must admit that it always has been pretty generally known that the penal institutions have been the fountains of cleverness. In the case of the tabes that I mentioned, one might be reconciled, I will agree with Dr. Williams, in that the blood was negative; that was not a great surprise to me. I think the negative blood return in tabes is quite frequent. But when the colloidal gold test was normal and the cell count was diminished below ten in a case that presented the clinical symptoms in the active stage of locomotor ataxia, reinforced by the other clinical symptoms of tabes, I must confess I was surprised. In the negative cases, such as the one I mentioned, I think one will have to consider always the possibility of development. Possibly one is frequently biased by the appearances of the case. A young lady comes into one's office, coming from a good family, generally presenting the appearance of modesty and respectability, showing no clinical signs whatever, and her vocation and her experience and her family and past history all negative—I must say that offers a possibility of some personal bias. It is perplexing, to say the least, and to bring these facts before you is the purpose of this paper. In conclusion I want to say that one of the criticisms that was made was that one should not ignore the positive laboratory reports. If you will recall, in the last conclusion I made I definitely stated that they should be gone over fully and watched, because they were always liable to show clinical evidences if the laboratory evidenced them. So, you see, I did pay my respects to the laboratorian, not from fear, but from sincere obligation.

**B. H. Matthews, Denver:** \*This is not to be a discussion of Dr. Moleen's excellent paper, but an explanation of Dr. Webb's accusation.

I met a government representative on this venereal work who said, "Well, Doctor, I presume you

have the same trouble that everyone else has—the man who sends the worst specimen complains most." I replied, "That is not hematology—it is human nature."

In preparing to do a considerable number of blood tests a sufficient amount of each of the ingredients is prepared to do all the tests of that day. Then from these flasks containing the different necessary ingredients a "trial run" is made with one known positive and one known negative blood. If this trial run be satisfactory, the proper amounts of these same ingredients are placed in appropriate test tubes which are serially numbered. Then the different sera which are previously serially numbered are added to the correspondingly numbered test fluids. Thus is seen the impossibility of two exactly similar bloods giving different reactions in one day's set of tests. As is apparently not generally understood by many of the profession, the peculiar biochemical property in sera upon which the Wassermann test depends is extremely unstable and sensitive to some bacterial actions and to the most minute contamination with some chemicals. So the proper preparation of the blood samples before sending to the laboratory is of the most vital importance. The slightest departure from absolute cleanliness, both chemical and bacterial, may destroy the validity of the report.

In one single shipment from Cañon City twenty-eight bloods were received totally unfit for tests. The attention of the State Board of Health was called to this. Later fourteen were received, thirteen of which were a putrefactive mass. These were taken to the board meeting. They were viewed from a distance.

In the third and fourth numbers of the Doctor's double tests one of each was hemolyzed and the other not. "Blood hemolyzed" on my report signifies that the red cells have been broken up and are in solution in the serum by bacterial or chemical contamination, thus rendering the blood unfit for testing. These bloods are not even uncorked. If these bloods had been started alike they would have arrived alike. They were not even contaminated alike.

A blood does not have to be putrid to vitiate the accuracy of the report.

As to the deep-eyed detective work in giving fictitious names to the double specimen: I am sorry, but it was quite a loss of puerile effort, for the bloods are all given their serial numbers at the office of Dr. McKelvey in the State House. And, besides, where from twenty to ninety bloods are examined in a single day there is scant time to gossip over each blood. And at approximately twenty-six cents each an exhaustive hematological treatise can hardly be expected for each specimen. Dr. McKelvey's records are never resorted to unless some pitifully gross error makes it advisable.

As to the responsibility for the hly prepared specimens from the penitentiary, the late Dr. Coffman informed me that the work was done by an inmate who was sentenced for losing an abortion case. Should all the error be laid to the technician or the Wassermann test itself when one vital portion of the work was done by hands proven to be unskilled, uncleanly and inaccurate?

The state penal institution has no monopoly on bad specimens: it has not even sent the worst—simply the greatest number of bad ones.

It was positively pathetic when this department was first started, to see the specimens. A common error was to put a few drops of blood between two slides and request a serological examination.

No error can arise from the extremely bad sam-

\*As a part of the discussion of the foregoing paper, if left unanswered, would seemingly question the accuracy of the work of the state laboratorian, it has been deemed proper by the publication committee that Dr. Matthews, who was not present at the session at which the paper was read, should have his views incorporated with the discussion.

ples, for they show in the specimen on observation, but the slight contaminations cannot be so demonstrated.

A laboratory can only report the reaction of a blood in the condition on arrival.

### **THE TREATMENT OF NASAL ACCESSORY SINUS DISEASE, WITH SPECIAL REFERENCE TO SURGERY.\***

**FRANK R. SPENCER, M.D., Boulder.**

This phase of the symposium must naturally be divided into the treatment of the acute cases and that of the chronic cases.

For some years I have followed the treatment recommended by Hajek, which consists of the following: 1. Ten grain doses of aspirin, every four hours. 2. A sweat bath daily, or if the patient does not tolerate baths so frequently, every other day; a Russian or a Turkish bath is preferred. 3. Rest in bed. 4. The drinking of large quantities of water. 5. Thorough cleansing of the intestinal tract with some form of catharsis; usually salines serve the purpose best, but these may be supplemented by cathartic pills. Hinkle's pills are preferred although the compound cathartics may be used. 6. Patients suffering from acute symptoms should have a light diet. In the majority of the mild acute cases this treatment will be sufficient.

The severer types demand local applications of adrenalin or weak cocaine solution to shrink the mucosa about the ostia of the accessory sinuses and to lessen congestion of the turbinates. It is often an advantage to pack the nose with pieces of cotton saturated with adrenalin or weak cocaine solution, and let the patient wait in the reception room while another patient is being treated, or if the patient is in bed it is best to leave the cotton pledgets in the nose while other patients are being visited in the hospital. After securing the effect of the adrenalin and cocaine solution, suction should be used. Some such apparatus as

Carmody's, Beck's, Brawley's, Sorenson's, or even DeVilbiss' is useful. For use at home or in the hospital Brawley's suction apparatus can be connected with the water faucet in the room, or Halle's hand aspirator is satisfactory. I prefer to use in the office a DeVilbiss suction outfit in a majority of the cases, because this can be attached to the compressed air apparatus.

I agree with Stucky that a majority of the acute cases do not require opening and drainage of the sinus or sinuses. I certainly cannot agree with him that we should not open or drain any of the acute cases. I have previously stated that the milder of the acute cases usually respond well to Hajek's method of treatment and the more severe ones to local applications in addition to the general medication. A few cases certainly require opening and drainage, and this is especially true of a maxillary sinus which is filled with pus. The ease with which this sinus can be opened facilitates the procedure.

Infraction of the middle turbinate by using Killian's or Sluder's bivalve speculum, with long blades, may be practiced to great advantage; especially if the middle turbinate is very large and hugs the hiatus so that it interferes with drainage of the anterior group of sinuses. The procedure is relatively painless, especially under mild local anesthesia and can be readily accomplished in a bedridden patient or in the office.

The severe types of acute exacerbation of chronic suppurative sinusitis require some modification of the technic recommended by Mosher for the ethmoidal cells and for exposing the floor of the frontal sinus. We may use his curette to open a large bulla, and thus liberate pus, or for breaking down the agger nasi cells not only when they contain pus, but for better drainage of the frontal sinus. Removal of its anterior third or even of the entire middle turbinate has long been recommended and used by many prominent rhinologists. Grayson's opening of the sphenoidal sinus, with a hand drill, by drilling through the anterior wall of the sphenoid below the natural ostium may be suited to acute cases or acute exacerbations

\*Written as part of a symposium on sinus diseases to be read before the Mid-Western Section meeting of the American Laryngological, Rhinological and Otological Society at Colorado Springs, February 7, 1920. (Owing to illness of the author at the time the paper was not read at the meeting.)



of sphenoidal sinusitis, but it is probably better suited to the chronic cases. In rare instances, especially in acute exacerbations of chronic frontal sinusitis, one may need to make an incision through the shaved eyebrow, removing a portion of the anterior wall of the frontal sinus in order to facilitate drainage. I myself do not like to resort to anything more than the very minor operations upon any of the accessory sinuses, such as drainage of the maxillary sinus through the nasoantral wall of the inferior meatus, without first having had a thorough x-ray examination, with films or plates made stereoscopically. Many of our ablest rhinologists, such as Mosher, Ingals, Beck, Hajek, Killian and others, have recommended this prior to operation.

In chronic cases of sinusitis, especially of the suppurative type, one must use an entirely different line of treatment. In the cases with acute exacerbations, especially of the milder type, I prefer to treat by such local methods as have already been mentioned under the treatment of acute cases until after the acute symptoms have subsided. Occasionally a surgeon is forced to operate in the presence of an acute exacerbation, especially of the so-called fulminating type. However, I always operate such cases with some hesitation, as I believe the risk of meningitis is always greater in the presence of acute symptoms. I try to avoid a radical operation under such circumstances, but this cannot always be done.

Recently Dr. LaRue and I were forced to operate in a case of chronic pansinusitis with involvement of the right and left frontals, right and left anterior ethmoidal cells and of the right and left maxillaries, in which the acute exacerbation was very severe and had not yielded to rather heroic treatment over a period of two or three weeks. The chronic infection dated back ten years and there was a great deal of pathology in the sinuses of the anterior group. With the aid of thorough stereoscopic x-ray films we did a Mosher operation on the right and left anterior ethmoidal cells and secured a good opening into the frontal sinuses after the agger nasi cells had been removed. We removed all of the

anterior half of each middle turbinate and a semilunar piece from the lower edge of each inferior turbinate. We made a large opening through the nasoantral wall of the inferior meatus on each side. There was such a large quantity of pus and the involvement was so extensive that a moderately severe secondary hemorrhage occurred on the eighth day after the operation. The nasal and postnasal packing necessary to control the secondary hemorrhage resulted in an acute middle ear abscess on the right side, followed by mastoiditis. Fortunately for this patient, a mastoid operation did not become necessary, although we did seriously consider this for a period of several days during the height of the acute symptoms. Since that time the discharge from the middle ear has grown less and less, and at the present time, I am glad to state, the hearing is perfect in this ear, so we know this patient is as well off as if this middle ear abscess had not occurred. However, the patient was very acutely ill and we had the worry of another serious acute infection in this case.

While I believe we are almost universally agreed that the vast majority of cases of chronic suppurative sinus disease require surgical treatment, I believe in the wisdom of Hajek—that a minor operation will cure ninety-five percent of these cases. Perhaps Hajek is too optimistic in this, and perhaps we should say eighty-five or ninety percent of the cases. Personally I have preferred to follow his advice and leave a major operation for the last, except in rare cases, in which we know in the beginning that a minor operation is contraindicated.

In unilateral chronic suppurative disease of the maxillary sinus I am always very suspicious of a diseased tooth as the underlying cause. I always like to have a reliable dentist remove such a focus of infection, if present, or in case he does not find the trouble there, have his assurance that the teeth are negative before undertaking the treatment. In case of doubt as to the amount of pathology in the maxillary sinus, Canfield's preturbinal method of operation for exploration of this sinus is deservedly popular. Cases in which x-ray examinations,

transillumination, repeated examination of the nose, needle puncture, etc., all point to definite pathology in the maxillary sinus, and in which the teeth can be excluded or have been properly treated or operated, I prefer to remove a semilunar piece from the lower edge of the inferior turbinate and then make a very large opening through the nasoantral wall of the inferior meatus. It is a common experience to see cases which have been operated upon by a colleague in which, too frequently, a small piece has been removed and the opening is so small that it has closed in a few weeks' time and before the discharge has ceased. I should like to emphasize here the need of making a larger opening into the maxillary sinus, but with as much conservation of the inferior turbinate as conditions will permit. Through this the antrum can be irrigated with a saline solution, or such antiseptic solutions as seem best.

In case all intranasal surgery has failed to cure a chronic suppurative maxillary sinusitis, a Caldwell-Lue operation is usually indicated. This permits a very thorough curettage of the entire sinus and a much better view than can be afforded by any purely intranasal operation. I have rarely found so radical an operation as a Denker indicated. I heartily agree with Skillern, Wells, Beck, Mosher and many others that extremely radical sinus surgery is rarely indicated. For intranasal surgery of the ethmoidal labyrinth I usually prefer Mosher's technique, although prior to the advent of his operation I used Hajek's. The Mosher operation certainly gives a much better removal of the agger nasi cells and a much better exposure of the floor of the frontal sinus. Mosher's operation may be used, as is well known, with or without the removal of part or all of the middle turbinate, which is a decided advantage. Sluder's operation or technique, with his short, stout hook, is worthy of commendation.

Ingal's and Halle's methods of operating upon the frontal sinuses, even when these sinuses are deep and you have the aid of x-ray plates or films to show the position, size, depth, etc., are rather dangerous procedures. Killian's radical frontal sinus op-

eration has fallen into disrepute, as the extreme deformity following its use does not appeal to the average American rhinologist. Good's frontal sinus operation or Beck's osteoplastic are certainly much safer and much better surgical procedures. Extensive removal of the anterior wall of the frontal sinus was rather recently recommended by Coakley, in order to reach the extreme temporal limit, but it seems too radical to commend to the average rhinologist. Lothrop's operation is much better.

Operations upon the sphenoidal sinuses can rarely be attempted without the removal of the middle turbinate, although so skillful a surgeon and diagnostician as Andrews can sometimes, by shrinking the posterior end of the middle turbinate, reach the natural ostium without first removing a part or all of the middle turbinate. Hajek has unhesitatingly advocated the removal of the middle turbinate for diagnostic purposes and certainly for surgical reasons.

I prefer to open the sphenoidal sinuses with Andrews' knives or Sluder's hook. The ostium having been enlarged sufficiently to admit some one of a variety of biting forceps, this natural opening can be further enlarged inferiorly and internally, keeping well away from the outer angle of the sinus. Grayson's hand drill may be useful for chronic cases, but unless a larger opening than this hand drill usually makes can be obtained the opening will become closed in too short a period of time. Sluder's hook and Mosher's curette will greatly aid in enlarging the opening.

In closing I should like to emphasize the importance of minor surgery in all but the rare types of severe obstinate suppurative sinus disease which have resisted all forms of treatment, or even minor surgery. To repeat the statement of Hajek and many others, minor operations will effect a cure in almost ninety-five percent of all the cases. I remember that Andrews early emphasized the importance of free ventilation and drainage, and with this step once accomplished little more is required. Most authors prefer irrigation of the sinuses, but Andrews has used compressed air for blowing the pus out. He thus avoids throwing the burden



of caring for the residual solution after irrigation of one or more of the sinuses upon the mucous membrane. Dr. LaRue and I have recently used Carrel-Dakin solution with rather good results in a case of obstinate maxillary sinus infection after irrigation had failed.

### **DIFFERENTIAL DIAGNOSIS OF URETERAL OBSTRUCTION FROM LESIONS OF OTHER ABDOMINAL ORGANS.\***

**O. S. FOWLER, M.D., Denver.**

Eleven years ago, I presented to this Society an original method of diagnosing ureteral obstruction which is commonly associated with much or little prolapsis of the kidney. I can now say that I have found this a most accurate and satisfactory method in recognizing what was then a very obscure condition, and can speak of it in the sense of a thoroughly tried and proven procedure which has been accepted and used by many of the profession. But I believe that it has not been accepted to a sufficiently general extent; it is for this reason that I desire now to reiterate some of the things said then and to emphasize the desirability and reliability of the procedure.

There is, unfortunately, a very prevalent opinion in the profession that a loose kidney is unimportant, and many believe that it cannot be replaced and anchored successfully, and that these patients come under the class of neurotics and are made much worse by being told of this condition; however, I do not believe that the knowledge of a loose kidney or any other lesion does disturb the patient if you can assure him that permanent relief can be given. I have seen a considerable number of patients who knew they had a loose kidney and had been advised by men in the profession that it would be a mistake to have it operated as, they said, the procedure was not often successful; and these patients, after such discouraging advice, are often hard to be convinced that the operation can be successfully done.

There are a good many people, both men

and women, who have loose kidneys which do not give pain or any particular amount of discomfort, but it was demonstrated more than twenty years ago that a simply loose kidney does not do its normal share of excretion. I cannot affirm or deny this, but I can say that I have never found a loose kidney that was doing its share if it had sufficient obstruction to give pain or discomfort, as these are the only ones that come to me; I can say, however, that a kidney may be loose for years without giving trouble and then, following a systemic infection, such as typhoid fever or tonsillitis, almost immediately give serious trouble. This, I believe, can be explained by the probability that its drainage is not complete, though not obstructed enough to give pain from back pressure, and consequently infection is planted, causing inflammation. I believe that pain here, with attending tenderness, results practically always from more or less retention of the urine and not from the kidney pulling upon its pedicle, as we were taught, though torsion of the pedicle is quite common.

Of the several symptoms of ureteral obstruction, pain is the most constant; and I would like to insert here that I believe that ureteral obstruction is the most common factor that gives chronic recurring attacks of pain in the abdomen. This pain may come on suddenly and may be severe enough to prostrate the patient, in fact may be as severe as renal colic from a stone attempting to pass; it really is the same, minus the trauma of the stone; or it may come on as a gradually increasing aching pain, usually in the kidney region and extending downward along the course of the ureter, and there may be tenderness in the appendix area or in the corresponding area of the left side. It usually extends downward into the bladder and genital areas, often accompanied by a frequency of urination with perhaps an urgency and tenesmus. More than half of the patients will also describe it as extending down the inside of the leg along the course of the genitocrural nerve. The patient often vomits in the attack; many others are nauseated and some will make themselves vomit. These patients have nearly all

\*Read at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1919.

found that they may get relief by lying down and nearly all apply hot stupes. The pain may be severe from a few hours to as much as forty-eight hours, with a soreness following for several days. Various forms of exercise or work will bring on the attacks, such as riding horseback, running for a car, a long or jolting ride in an automobile, lifting a heavy load, as a farmer lifting a wagon-bed or hayrack, housework such as sweeping, scrubbing, washing at the tub or running a sewing machine, or reaching up high as in hanging a picture.

The urinary findings may be entirely negative but usually show some pus and a few cases will have much pus; there may be albumin in varying amounts, but usually there are no casts. I believe that a good many doctors regard kidney pathology as excluded when they cannot find any pus. This may be wrong in two ways: first, the infected kidney may not be emptying urine into the bladder when the bladder specimen is collected and second, and most important, the pelvis of the kidney with an intermittently obstructed ureter may never have become infected and you must remember that obstruction may be present for many years without infection supervening.

The history of the case is extremely important in the following points: First as to systemic diseases the patient may have had even as a child, such as tonsillitis, pneumonia, empyema or typhoid fever; ask very carefully as to the character of the pain and especially what brings it on, the kind of pain it is and, very important, how he gets relief from it. It will be found that he has discovered for himself that he may get relief by lying down and using hot stupes. I have also observed that the patient usually sleeps upon the side of the loose kidney and, if both are painful, he usually sleeps upon his back or upon his face; this is due to the attempt to keep the kidney from dropping to the opposite side and twisting the vessels and ureter. Find out how long he has had these occasional attacks of pain; in a few cases they will date back to early childhood. I recently had a patient that suffered in such attacks at four years of age. Ask whether in their childhood they could run

and jump and play as other children without getting severe pain; let them tell in their own words just what brings on the attacks without your asking leading questions; ask where the pain begins and whether it stays there or radiates somewhere else—but do not suggest where by asking whether it runs towards the genitalia or down the leg. Find out as to frequency of urination and whether there is pain in the bladder or tenesmus while the kidney pain is on; I might say here that I regard the general idea that cessation of pain in ureteral obstruction is followed by passing large quantities of urine, is without value diagnostically and quite unreliable in all cases except in those in which the kidney is probably entirely destroyed; however, some polyuria from over-active secretion may follow an attack, for both of the kidneys may cease to secrete while one of them is in distress. Let them tell in their own language what brings on the attack; sometimes they will say they do not know; they should then be questioned more directly to find out exactly what it is.

Find out how long the pain and subsequent soreness lasts and whether they have ever found a tumor mass, which is the kidney, in the abdomen; a considerable percentage of the thin patients will have felt this themselves. Find out if they had fever or chills or vomiting or nausea.

The general urine may contain pus and most certainly a negative urine does not exclude the kidney or even have a bearing that way; it only means just what it says, that there has not yet been superimposed a pyelitis, provided of course the affected kidney's urine is reaching the bladder; in fact the general urine has little value, and only the catheterized ureteral specimens should be considered in forming a diagnosis. The most important thing of all is the taking of an x-ray picture of the kidney and ureter involved, while the patient is in the standing position with the catheter inserted only far enough to prevent the injected solution from flowing back around the catheter into the bladder. The patient should have been previously made to cough and jolt upon feet. The catheter is left in the ureter for five minutes. Then in twenty minutes, three



plates covering the entire length of kidney and ureter, are taken to demonstrate retention or intensified stones. A picture with the patient lying down with the catheter in any position or with the patient standing with the catheter inserted into the kidney pelvis, I regard as wholly without diagnostic value, except that it may show a dilated pelvis; but it does not show the cause of this dilatation. It is unfortunate that many men think they have eliminated the kidney when they have taken x-ray plates and found it negative for stone; hardly a greater error could be committed, for a very small percentage of all cases with possible kidney stone symptoms really show a stone shadow; they are these cases which have stone symptoms, yet without a stone, and in my experience approximately only fifty percent of all actual stones are demonstrable without intensification with some silver compound. Many of these cases have been operated upon once to several times. Usually a so-called chronic appendix is the first to be attacked, then next in frequency come the various pelvic organs and it is not an unusual thing to find that these patients have had both ovaries, both tubes, uterus and appendix removed and often have had subsequent operations for "adhesions," and still have their original pain, and I can say that they are extremely fortunate if they have only their original trouble. Exploratory operations, while sometimes necessary in the abdomen, are often none less than meddlesome or even dangerous unless the kidneys have been positively excluded, for any operation in the belly may be the excuse for further unnecessary operative measures in this region, and I believe that more neurotics result from ill-advised operations than from any other one source at our hands. I believe that of the appendices that are called chronic and are removed, only a relatively small percentage show real lesions that can reasonably explain the symptom complex which the patient presents; with all candor I can say that I have seen but very few real chronic appendices, and I feel that no case of so-called chronic appendicitis should be operated upon until the right kidney and ureter have been positively excluded and it may be

necessary to do this with the ureteral catheter and the radiogram with an opaque substance in the kidney pelvis and ureter and with the patient in the erect position. Recurring attacks of pain without fever or pus formation and lasting a few hours or a few days, with a tender and palpable kidney after jarring upon the feet in the erect position are almost positively not due to the appendix. The symptoms of acute appendicitis usually are so distinct that little difficulty of diagnosis will be experienced, but tenderness over the kidney front and back should urge us to be extremely careful. As far as the diagnosis of chronic appendicitis is concerned we believe and hope it has passed the zenith of its very much undeserved popularity.

Considerable difficulty may be had in differentiating between a gallbladder infection and a kidney infection, especially if it has been of several days standing, for the proximity of the organs may have caused a severe pyelitis from the distended and obstructed gallbladder. I have made this error even after a very careful examination.

The stomach may show marked symptoms, especially in double ureteral obstruction without pyelitis; we believe that this is mainly due to an acidosis from under-elimination by the kidneys. The quantitative urinary analysis for three or more consecutive days should be sufficient to place the blame upon the kidneys, especially if you put the patient in bed flat upon the back for several days and do not increase the usual fluid intake.

The symptoms of mesenteric thrombosis are so definite that this should not be mistakenly diagnosed in a kidney lesion, however, I have known this diagnosis to be made and an operation performed for the supposed condition, and the patient had a recurrence of his kidney symptoms as soon as he got upon his feet and before he left the hospital. This same patient also had another operation in the belly for the same symptoms; this time the procedure was dignified by being called an "exploratory operation".

A diagnosis of pleurisy should not be made here except in the presence of a pleuritic rub, and the two conditions can

hardly be confused if proper examination is made.

We come now to the pelvic region and we must say that there is no part of the human anatomy where such bizarre explanations are given for the slightest deviation from the normal pelvis or even an apparently perfectly normal pelvis. We are in doubt whether these opinions are given in sincerity, with a clear understanding of pelvic pathology, or whether they are given with the feeling that the patient will be satisfied with almost any explanation of abnormality and is willing to wait year after year with the hope that these parts will correct themselves. The pelvis offers the best field for careful examination and I cannot see the slightest reason for trying to explain pain from the region of the kidney to the high ovarian region by a supposed condition in the pelvis that is not present or one which is not positively demonstrable by a careful bimanual examination.

I regret to report that I have seen a very considerable number of cases in which all the pelvic organs have been removed for a very simple kidney pain and which of course still persisted even after several pelvic and abdominal operations had been performed. The most notable of these was a woman who in sixteen years had had eight abdominal operations and still had her original pain. The most unfortunate part is that most of these cases are in relatively young women, still in the child bearing period, and many of them yet desire children; there are often added to this the distressing mental and physical symptoms of unnecessary menopause and loss of sexual desire.

I have had but one case of kidney difficulty in which a diagnosis of an inguinal hernia was made; this was in a young man who had already had the appendix out, and I guess it was thought that hernia was the best explanation. He positively had not the slightest evidence of a hernia, and why one of the best recognized surgeons of the state should make such a far fetched diagnosis is beyond my ability to explain.

Several cases have been mistaken for spinal arthritic disease, and casts have been put upon them, of course without relief; this

condition bears little similarity to an inflammation of any joint and should not be mistaken for the same.

### Conclusions.

(1) A negative urine does not exclude the kidney.

(2) A negative x-ray plate for kidney stone is without value in excluding the kidney where there is pain simulating stone symptoms.

(3) A large percentage of abdominal exploratory operations and all kidney explorations should be condemned as making for laxness in diagnosis.

(4) Most kidney difficulties are caused by improper emptying due to more or less obstruction to the ureter, usually from without.

(5) Injected x-ray plates with the patient lying prone have no value except to determine stone and extreme lesions of the kidney.

(6) Many patients are unjustly accused of having the "operating habit" because they have not yet given up hope of finding relief from their original trouble and from the damage caused by useless operations.

(7) The popular term "adhesions" practically always comes into use following operations that were done for the wrong thing; unless adhesions are giving fairly positive intestinal obstruction you are not justified in even considering them as a factor in any case that has been previously operated upon, but should conclude from this evidence alone that the case was incorrectly diagnosed.

(8) "Chronic appendicitis" is more or less of a misnomer. This condition can only be diagnosed by exclusion and the right kidney is the most important organ to be excluded.

(9) The Edebohl's operation can only be mentioned to condemn it as being inadequate and ineffective and usually leaving the accompanying constipation worse than before, because the support of the ascending and descending colon has been torn away, allowing the colon to prolapse more, thus increasing the constipation.

(10) I have now done nearly two hundred nephropexies by the use of fascia, as described seven years ago, with most grati-



fying results, and feel that the operation is far superior to any yet devised for this purpose.

(11) This condition occurs about equally in frequency in the right and left kidneys, also in men and women, and in women who have and those who have not borne children.

530 Metropolitan Building.

#### DISCUSSION.

**O. M. Shere, Denver:** The subject presented by the essayist not only is interesting, but should give us food for thought. There are, indeed, many instances in our practice where the clinical symptoms are highly confusing. Certain symptoms interpreted as coming from the kidney may in reality be due to a diseased appendix, gall bladder or what not, and vice versa. No one would deny that some of these conditions offer very perplexing problems which are not easily surmounted. In such cases we should avail ourselves of every possible aid which may clarify the diagnosis. Dr. Fowler brought out many points, but omitted the importance of blood in the urine. I should emphasize that whenever erythrocytes are encountered in the urine one should think of the kidney first no matter what the clinical picture may be. I must beg to disagree with the essayist regarding his statements with reference to chronic appendicitis. These are entirely too sweeping in character. It is true that some belittle the condition, while others exaggerate it, but there is a middle ground which is the safest one to stand upon. Dr. Bevan, in a recent article, says that he will not make a diagnosis of chronic appendicitis in any patient unless there is a distinct anamnesis of an acute attack. I think this is too radical a dictum and, indeed, dangerous teaching. We do know and appreciate the entity of chronic appendicitis, notwithstanding the fact that occasionally it may be confounded with a loose kidney on the right side. Thoroughness should be practiced to the highest degree in every case and thus a correct diagnosis will be arrived at in the great majority of these cases.

**T. R. Love, Denver:** Having worked with Dr. Fowler in some of these cases, I have been particularly interested in hearing his paper. I wish he could have read all of it to us. Nevertheless, I cannot agree with him in regard to his statement in relation to appendicitis. I have never but once seen an appendix which, so far as I could judge, was perfectly normal, and that appendix was recently seen in an operation for gastric ulcer which, by the way, was there, and the appendix was not bound down by adhesions or any so-called membranes, and on stripping it was easily emptied and showed no congestion of the vessels. I think that we probably do unconsciously differentiate in our minds between what I call a mechanical type of appendix and the true inflammatory appendix, and I must say that I believe that practically all of these cases which Dr. Fowler would make us feel are really primarily and entirely due to bad kidney probably have what we are more likely to have, namely, one troublesome kidney—and a bad appendix; and at first operation it is natural for us to conclude that an appendix which is bound down, or in other ways mal-formed, or has a concretion in it, is the true cause of the trouble. Nevertheless, I have seen some of these

cases which had been previously operated upon for appendicitis, and I know that after removing the appendix some patients do have trouble which is practically as bad as before they were operated. I think also I shall have to differ from him a little bit in regard to this statement about adhesions. Now, it is not necessary that you have a partial obstruction of the intestine to say that adhesions are causing trouble. I am perfectly satisfied and believe that we have all seen cases in which the omentum, for instance, may be bound to the abdominal wall in such a way as to cause dragging of various parts of the bowel and give very perfectly defined pain. Adhesions, for instance, around the gall bladder, or in the position where the gall bladder was once located, cause a pain on the right side which is difficult to distinguish from that caused by the kidney. In spite of my disagreement with Dr. Fowler on these minor points, I want to say that he has opened our eyes to one of the most difficult things with which we have to contend, and I heartily approve of the work which he has been doing. I feel that we must devote more attention to the subject of movable kidney, which is so liable to cause these troubles on the right side.

**E. E. Evans, Fort Morgan:** I want to refer to this paper very briefly. I have had one case here, pictures of which Dr. Fowler expected to present to you, and I feel a little inclined to move that we extend him a little time that he might show that, because the pictures are extraordinary—beyond anything I have seen in any of the textbooks anywhere as to the size and the number of stones in the kidney. This patient is one who has had some kidney trouble since early childhood. She is now past thirty years of age and gives a history of having had trouble almost from the time that she started to school. And this has been obscure; there wasn't thought by the parents to be much trouble; she would lie down at times and complain of a little pain in the back—had no bladder symptoms—and has gone on through these years in comparatively good health, but at times with some distress in the back. Three years ago I saw the patient in what I considered to be a typical renal colic, and at that time I gave a hypodermic. Pain was relieved and the symptoms all passed away immediately and she went back to work, and she has gone on until about a month ago in comparative comfort. She had an attack about a month ago while visiting away from home. She consulted a physician in Omaha, who advised operation. Two or three days later she came home and returned to my care. I insisted at this time upon x-ray plates being made to determine the difficulty. Both kidney pelves were found to be abnormally distended, and the urine to flow only under pressure. By the way, she had given no indication that there was any trouble in the right side, but the x-ray plate showed the distention almost the size of one's fist. On the left side there was considerable pain and the x-ray showed the presence of five large stones. I wanted to speak of the attitude of the physician towards the x-ray, in urging its immediate use.

**Dr. Fowler (closing):** I don't mean to give the impression that chronic appendicitis does not occur. It does occur, but in a relatively small percentage of the cases that are called chronic appendicitis. As to the pathology that Dr. Love speaks of, the finding of hemorrhagic spots, I think these are relatively unimportant. If you have a real atrophic appendix, that is certainly pathology enough to account for a good many symptoms, and you can have both a bad appendix

and a bad kidney. It is undoubtedly true that adhesions may give some trouble without giving positive obstruction, and you can hardly go into a belly that has been opened before and not find some adhesions. On the other hand, you can find a belly full of adhesions which never have given any trouble. I started to show some plates where pelvic conditions had been diagnosed. It seems that it is quite an easy thing to tell the patient that there is something wrong in the pelvis and to find and remove a cystic ovary. There may be a small cyst, but I don't believe a small cyst causes trouble. I don't want you to feel that I am trying to break down the established ideas of abdominal diagnosis, but I do want to impress upon you that the kidney enters into this chronic recurrence of abdominal pain more often, I believe, than any other organ in the abdomen. The kidney must be approached by a different route. You cannot find its trouble if you are operating on the anterior surface of the abdomen, so that the kidney should be excluded before operation. Bear in mind that negative urine and a negative shadow of a stone—those two things—do not exclude the kidney. These attacks come on recurrently and last from a few hours to several hours, maybe a day or two, and a soreness, perhaps without temperature, follows. Now, these cases are not appendicitis, yet they have been called that many times. It may be that my views could be possibly biased somewhat, as I am seeing the cases where appendectomies or abdominal operation have failed. However, forty-five percent of the cases I have seen have had their kidney removed, and been urged to have it removed. I only ask that you bear in mind what I say and carry it with you in your practice and see if I am right or not. See if you are overlooking these cases, and if you are, work them out. Maybe we shall not all become so radical in our views about chronic appendicitis, but according to my own experience the chronic appendicitis and the pelvic organs are commonly abused in making an abdominal diagnosis and in advising abdominal operations.

### **SUBCUTANEOUS USE OF LOBELIA.\***

**A. J. NOSSAMAN, M.D., Pagosa Springs.**

The number of remedies that are used by the medical profession for the cure or alleviation of disease is legion. The number that we can depend on is comparatively small.

One remedy that I have used and studied a great deal during the past fifteen years I feel is not understood, appreciated and used as much by the general practitioner as it should be. It is lobelia used subcutaneously.

I well remember an old Thompsonian who used to practice in our town and who gave lobelia for everything from teething to broken bones. The last few years I have decided that he was about right, for I know of

no other remedy with which he could have secured such results with his limited knowledge of the fundamentals of the practice of medicine.

I can add nothing to the history of pharmacology of the drug and so will deal only with its uses in general practice, for that is where our interest lies.

Many who have used it slightly think of it only in cough mixtures, but it has a much wider range than that. It acts as a sedative, an antispasmodic, a stimulant, a relaxant (both muscle and nerve), an alterative and an eliminant.

I think its greatest power is in the latter action—as an eliminant.

Whether lobelia directly destroys toxins or exercises within the system a powerful antitoxic action or in some manner eliminates the toxins from the system, I think has not been determined. I do not know; but, given a case as we all see so often, with deficient elimination and the usual symptoms of retained toxins, especially slow and chronic cases, a few doses of lobelia, given hypodermically, will do more for me than any remedy I know of; and as I said before, my observation leads me to believe that it is through its powerful eliminating action that we secure such results.

The dose is from ten minims to one dram, repeated as necessary. I usually give it every two to four hours in acute cases and once or twice a day in chronic cases.

I have never seen any bad effects except occasionally some vomiting, and that very rarely. I have never encountered an abscess. I have used it in the pernicious vomiting of pregnancy when the breath was foul, tongue coated, teeth covered with sordes, urine very scanty and dark with albumin and indican, and the patient altogether looked and felt like sin—very much like a low typhoid condition. I have been well pleased with it in these cases, for some of them looked as though nothing would do them any good.

In the desperate cases of influenza during our recent epidemic and when I was at a loss to know what to do, I think I got my best results from lobelia.

My first serious use of it was about fifteen years ago during a small outbreak of

\*Read at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1919.



diphtheria in our county. I could not get antitoxin readily and used lobelia till the antitoxin came. I treated four cases with the lobelia and six with the antitoxin; all the cases were mild, and one series got along as well as the other. The diagnoses were confirmed by the state bacteriologist.

In asthma I prefer it above all remedies. I do not recall a case where I have failed to obtain relief. As an antispasmodic it is a powerful and harmless remedy, relieving spasmodic pains due to menstrual disorders, bowel disturbances, colics and so forth without the bad after effects of morphine. There have been many failures in my experience with it, but the fault has been mostly my own.

Lobelia is not a cure-all, but it is an excellent remedy in properly selected cases, and it should be better known and more widely used. A case will probably illustrate its use better than I can put it in any other way.

Two years ago a man brought his wife to Pagosa Springs to see whether the waters would benefit her rheumatism. Her history was as follows: Age, 33; married fourteen years; never pregnant; mother alive and well, age 76; father killed by accident; three sisters and one brother alive and well; two brothers drowned. She was robust as a girl and looks so now. Five years ago she had both ovaries removed; appendix also. Two months ago, while visiting her sister in Missouri, she had a chill, and following it a big red spot appeared on the back of one leg between the knee and ankle. This was followed by one on the other leg, and then by others on different parts of the body. The spots would leave for a few days and then return. They itched some, but not intensely. With the spots came pain and swelling in the knees and feet. The eruption finally disappeared, but the pain and swelling continued. Bowels constipated; breath bad; tongue coated; headaches; leucorrhea. She just felt sick as could be all over; thought she would die, and hoped so. She had been taking treatment for rheumatism ever since she became sick.

Physical examination showed the heart, lungs and skin normal; temperature, 97°;

blood pressure, systolic 118, diastolic 95; mouth and throat negative; right leg badly swollen from the knee to and including the foot; very tender over entire frontal aspect of the tibia and internal condyle of the knee; left leg slightly tender and swollen; creamy, odorless discharge from the vagina; no tenderness about the pelvic organs.

Diagnosis: septic arthritis, probably from the pelvis or digestive tract, or both.

The rheumatism treatments and baths did not seem to help her any.

I gave her laxatives containing bile salts and used Van Cott's combined bacterins for a couple of weeks, but could see no improvement. I then put her on lobelia, thirty minims, once a day, and kept it up for six weeks, when she had made a complete recovery. For the pelvic condition I simply had her use hot saline douches.

After two days of using the lobelia the urine became more free, and after four days the bowels began to improve, and I was encouraged to go on with the treatment.

Now, considerably over a year since discontinuing treatments, she remains well, with bowels and kidneys apparently perfect.

I know not whether my diagnosis was correct, but the patient is well and satisfied.

What I wish to bring out is this: In lobelia, properly used, we have a valuable remedy that is not used as much as it should be and one that should be given more study and trial.

#### DISCUSSION.

**O. M. Gilbert, Boulder:** I think Dr. Nossaman's paper should not be passed by without some discussion, because I believe it opens up some valuable avenues of thought. I believe lobelia is very much overlooked, although I am frank to say my own experience with it has been limited to asthma and bronchial conditions. But at Dr. Nossaman's suggestion, I shall try it in other patients. I am anxious to hear in what form the doctor uses it hypodermically.

**W. F. Singer, Pueblo:** The paper, it seems to me, is very interesting from several sides. I want to speak, incidentally, about the vomiting in pregnancy, and to call especial attention to the dehydration of the tissues; if you give ordinary water it is of very great value. I am glad to hear the author speak of the use of lobelia in this condition, because any added help we can get will be of great value. Lobelia has been neglected, as Dr. Gilbert has said, and we have not used enough of it. I remember that some years ago a traveling man came into my office and called my attention to lobelia, and then he produced a little book and said if I would sign my name for each

prescription there was a regular fee there, so I was somewhat disgusted.

**Dr. Nossaman (closing):** In regard to the preparation used, I use only one, and that is Lloyd's subcutaneous. I carry it with me all the time, but I have got to know about what to expect, and I carry tablets as a sort of an emergency, but don't use them except in case I don't have the other. I didn't mention the name because I didn't care to advertise any particular preparation. In regard to the one point that Dr. Singer brought out, the dehydration of tissues, I was called one evening to see a school professor who had had intense diarrhea for a few days. He had been treating it himself and wearing it out, as he said, and on Sunday evening he became very sick in the night and I was asked to come right down to see him. I found him suffering intensely with cramps and pains in the chest, which I attributed, after examination, to the dehydration of the tissues, and with perfect confidence I gave him thirty minims of lobelia hypodermically. He was sitting up in a chair, two people holding him, gasping for breath. Inside of a few minutes following the administration of lobelia he was lying down in bed, and I followed it by other measures; but the balance of the night he slept very comfortably.

## News Notes

Dr. G. P. Lingenfelter of Denver, passed assistant surgeon, U. S. Navy, has been relieved from active duty and is now devoting his entire time to his specialty, dermatology.

The statement in the May issue as to the number of Colorado men who are presidents of national societies should be supplemented with the name of Dr. D. A. Strickler, president of the Federation of State Medical Boards of the United States, making four national presidents.

Reviving an old custom, the American Medical Association, at its annual meeting this year, supplied the pulpits of various churches on the Sunday preceding the week of the meeting. It is interesting to know that out of some twenty appointments to pulpits in New Orleans three were filled by Colorado men, Dr. Amesse speaking at the Unitarian church, Dr. Jackson and Dr. Grant at the Presbyterian church—one in the morning and one in the evening.

Dr. R. G. Smith of Denver has returned from a six weeks' stay in the East, where he was engaged in postgraduate study.

Dr. Phillip Hillkowitz has returned from a trip east of several weeks' duration.

Dr. G. F. Libby, who is on an extended trip in the New England states, states in a letter to a Denver friend that his address, until further notice, will be, care Mr. D. A. Grover, Route 3, West Paris, Me.

We are informed that St. Anthony's Hospital, Denver, is in need of a few more applicants for class forming in the school of nurses.

It has been brought to the editor's attention that the Christian Science Church is not in any way behind the Colorado Medical Liberty League and that, as a matter of fact, the church advises its members to submit to vaccination when this is compulsory.

According to the daily press, more than two hundred applications were received in one day for entrance in Denver hospitals of sick discharged soldiers. It is thought that this district, embracing four states, will reach first place in the United States for the number of patients in private hos-

pitals. In May, two thousand three hundred and eleven new cases reported in Denver.

Dr. James E. Hally, a pioneer physician of Colorado and a resident of Denver for the past thirty years, died at his home in Denver May 26th at the age of 77.

Dr. Hubert Work of Pueblo was tendered a banquet by the medical profession of Pueblo County on May 7th in recognition of the honor attained by him in being selected president of the American Medical Association.

Dr. George K. Ohmstead of Denver has been appointed a member of the State Board of Health.

Physicians from Colorado, Wyoming, Utah and New Mexico, over one hundred in number, attended the sessions of a ten-day course of instruction in diagnosis and treatment of tuberculosis given in Denver by the U. S. Public Health Service.

### El Paso County News.

Dr. W. A. Campbell has returned from the East, where he was elected vice president of the American Therapeutic Society at its convention in Philadelphia.

Dr. B. B. Grover has gone to Kansas City to deliver a course of lectures before the Western School of Electro-Therapy and to preside over the annual session of the Western Electrotherapeutic Association.

Dr. A. H. Peters, county physician, has left for a two months' trip in the East. He will visit Kansas City, Chicago and Boston to study the work of child welfare clinics which are held there. On his return he is to direct the clinic to be opened at the court house.

Dr. G. B. Gilbert has gone east to visit clinics.

Drs. Z. H. McClanahan and F. L. Dennis are visiting eastern clinics.

**PSYCHOPATHIC HOSPITAL PETITIONS, WHETHER COMPLETELY OR INCOMPLETELY FILLED, SHOULD BE CERTIFIED TO AND SENT TO DR. MOLEEN AT ONCE. THEY MAY BE RECEIVED AS LATE AS JUNE 25TH.**

## Medical Societies

### CITY AND COUNTY OF DENVER.

The last regular meeting of the season of the **Medical Society of the City and County of Denver** was held May 18, 1920. Among other business transactions the following resolution was adopted:

"Whereas, In the City and County of Denver some opposition has developed against the enforcement of regulations relative to vaccination of school children, and

"Whereas, Such opposition is generally due to false teaching and insufficient knowledge of the truth; therefore, be it

"Resolved, That the action of the Manager of Health and Charity, compelling children to be vaccinated before attending school, is approved by this Society, and be it further

"Resolved, That for the enlightenment of the public as to the matter of vaccination a committee of three be appointed by the president of this Society to prepare a statement of not over 2,000 words, giving briefly the history, progress, results, and proof of the great benefit vaccination has been to the world."



### EL PASO COUNTY.

The May meeting of the **El Paso County Medical Society** was held in the grill room of the Elks' Home May 12th. Thirty members were present.

Dr. A. M. McIntyre of Cripple Creek was admitted to membership by transfer from Teller County.

Dr. Gillett spoke of the Child Welfare Work in El Paso County, the plan being to examine the school children in the county.

Dr. Webb reported on the progress attained in preventing tubercular patients without finances coming to Colorado. He said the doctors had been largely to blame in sending those people here.

Dr. F. L. Dennis read a most interesting paper entitled, "Tests of the Internal Ear as Related to the Work of Otologists and Other Branches of Medicine."

The practical application of the Baroni tests was shown by demonstrations on first normal and then pathological cases. The tests for nystagmus, past pointing, vertigo and falling were demonstrated. A patient whose semicircular canals were destroyed by fracture was shown to have all normal phenomena absent in all tests.

Dr. Dennis' paper was discussed by Drs. Stevens, Mullin and Knowles.

Following Dr. Dennis' paper the time was taken up with the presentation and discussion of clinical cases.

Dr. Gardener spoke of the high frequency current as a relief of high blood pressure and of neurasthenia.

Dr. Arnold spoke of his experience in producing higher than normal temperature in chronic ailments by the high frequency current.

Dr. Patterson presented a case of a patient suffering for three days with pain in the head and face. The temperature was 102°. The left eye protruded and there was pus in the left nostril. An internal operation was done and a frontal sinusitis found. There was considerable drainage. Staphylococcus aureus, pneumococcus and streptococcus infection was found. The drainage not being sufficient, an external operation was done, showing healing by a scar almost imperceptible.

C. E. RICHMOND, Secretary.

### FREMONT COUNTY.

The members of the **Fremont County Medical Society** met in Florence May 25th and matters of unusual interest to the profession came up for discussion.

Dr. Hutton was requested to give a history of the John M. Richardson case, the young man who was injured in the automobile wreck on the night of April 30th.

Dr. Adkinson told of an unusual case in the nature of a tumor of the brain; Dr. Davis reviewed a typhoid case that was very much out of the ordinary, and Dr. Rupert interested the members with a history of the case of Mrs. Camerilo.—Cañon City Record.

### OTERO COUNTY.

The regular monthly meeting of the **Otero County Medical Association** was held at the Santa Fé Hospital in this city last Tuesday evening, with about eighteen members in attendance. Papers were read by Dr. C. W. Thompson of Pueblo, Dr. W. T. Little of Cañon City, and Dr. B. F. Hartwell of Colorado Springs. Physicians from out of town were Drs. Davis, Brown, Smith and Taylor

of Fort Lyon; Dr. Burnett of Lamar, and Dr. Blotz of Rocky Ford.—La Junta Tribune.

### MESA COUNTY.

The meeting of the **Mesa County Medical Society** May 20th about the banqueting board at La Court Hotel, was one of the most successful in the history of the society, there being present thirty-nine of the fraternity. The attendance of invited guests from Montrose and Delta was especially large.

Following an excellent repast Dr. H. R. Bull presided while a short program was enjoyed, which consisted of a paper on "Internal Secretions", by Dr. Hazlett of Paonia; an address on "Influenza", by Dr. Hadley of Montrose, and another paper on "Focal Infection", by Dr. Cary of this city. Drs. Warner and Thurston gave a very interesting illustrated paper on "Dental Focal Infection".—Grand Junction Sentinel.

## Book Reviews

**New, and Nonofficial Remedies, 1920**, containing descriptions of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1920. Cloth. Price, postpaid, \$1.50. Pp. 387, plus XXXI. Chicago: American Medical Association, 1920.

New and Nonofficial Remedies is a book in which are listed and described the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1st of the year of publication. Acceptance of a proprietary preparation signifies that its composition has been declared, that it is deemed by the council to give promise of possessing therapeutic merit and that it is not marketed under unwarranted or otherwise objectionable claims.

The book also describes those unofficial non-proprietary drugs which in the opinion of the council may be found to be of therapeutic value. Tests are published whereby the identity and purity of the drug may be determined and brands which comply with these standards are listed.

New and Nonofficial Remedies, 1920, should be in the hands of all physicians who prescribe drugs. The book contains information about the newer materia medica products which cannot be found in any other publication—information which all physicians should have.

**Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association for 1919.** Cloth. Price, postpaid, 75 cents. Pp. 99. Chicago: American Medical Association, 1920.

This volume contains the reports of the council which were adopted and authorized for publication during 1919.

These council reports discuss the preparations which were examined and found not acceptable for New and Nonofficial Remedies. The present volume gives the reasons why, among others, the following proprietary preparations were not eligible for recognition and description: A number of "Collosol" preparations of the Anglo-French Drug Co., the Proteogens of the Wm. S. Merrell Co., Hormotone of the G. W. Carrick Co., the much-advertised tooth wash (also advised for the treatment of gonorrhea) Lavis, Micajah's Wafers and Micajah's Suppositories, Medinal, Dial "Ciba,"

Apothesin. The three last mentioned, it is explained, might be made eligible for New and Non-official Remedies if their manufacturers were to revise their claims, and for this reason have been included in the "Described But Not Accepted" department of New and Nonofficial Remedies.

In this volume are also given the reasons why certain preparations, though included in previous editions, are not described in the 1920 edition of New and Nonofficial Remedies.

Of particular interest is a report on acriflavine and proflavine which includes a critical review of the literature of these two new dyes used as anti-septics, and the report on Mercurochrome-220, the new germicide for use in the genito-urinary tract which is being investigated at Johns Hopkins by Hugh Young and his associates.

The annual reports of the Council on Pharmacy and Chemistry should find a place in every physician's library, side by side with the annual editions of New and Nonofficial Remedies.

**Surgical Shock and the Shockless Operation Through Anoci-Association.** By George W. Crile, M.D., Professor of Surgery, School of Medicine, Western Reserve University, Cleveland; and William E. Lower, M.D., Associate Professor of Genito-Urinary Surgery, School of Medicine, Western Reserve University, Cleveland. Second Edition of "Anoci-Association." Thoroughly Revised and Rewritten. Octavo of 272 pages with 75 illustrations. Philadelphia and London: W. B. Saunders Company, 1920. Cloth, \$5.00 net.

This new edition of Crile and Lower's shows a considerable change from the first, being based, as they state, on added experiences in the civilian clinic and the military hospitals. The book discusses in turn the nature, cause, prevention and treatment of shock. The kinetic theory is first presented. The experimental laboratory, the post-mortem table and the clinic furnish convincing proofs of the soundness of their deductions. Prevention and treatment based on this theory are then described, first in general, then in detail, for the different surgical conditions. Their remarkable reduction in the incidence of postoperative shock at the Lakeside Hospital is ample argument in favor of the rigid rules they lay down as to anesthesia, local technic, psychic technic, etc. Photographs and illustrations are in abundance.

It is difficult to speak too highly of this work. The book is thorough and scientific, arrives at definite conclusions in logical steps, while at the same time it is clear, short, concise and readable. It is interesting from start to finish and holds the reader's attention without effort. While, naturally, many parts of the subject are theoretical, other portions are intensely practical and based on the authors' hard-earned experience, as well as their previously described basic theories.

Every surgeon should read this book. He may learn a few new practical points in the prevention of shock; he will realize better some of his own shortcomings, and he will thoroughly enjoy an interesting, clear and concise exposition of a most baffling subject.

G. B. P., Jr.

**Sexual Impotence.** By Victor G. Veckl, M.D., San Francisco, Cal. Sixth edition. 12 mo. of 424 pages. Philadelphia and London: W. B. Saunders Company, 1920. Cloth, \$3.00 net.

This work, in its sixth edition, should not need an introduction to the medical readers interested in this subject, because of the popularity of the previous editions. It has appeared, to my knowledge, in six English editions and, I believe, in two German editions—the first German edition in 1889.

This first edition was probably the first complete monograph on sexual impotence and the author has taken great pains to revise each edition so that all of importance brought to the attention of the profession between times was considered in the next.

He has not failed to bring the sixth edition well up to date, giving considerable attention to that portion, the endocrinology, which seems to have attracted much attention of late. Fearing, however, that the time is not yet ripe for much on this subject, he is rather conservative. It is apparent, however, that to him there is much work to be done here.

To review this new edition it need merely be said that its plan is the same as that of the previous editions, with the introduction rewritten, and the anatomy and physiology concerned carefully taken up as of old. The chapters on etiology and forms of impotence have practically undergone no change since the previous edition. The chapters on diagnosis, prognosis and prophylaxis are about the same. The treatment is varied only by a few additions to the endocrinology, as mentioned above.

Further, one may say, as one might have said of the previous editions, that the work is as complete as any hitherto published, and is valuable because of the author's deep knowledge of the subject, as well as because of his sense of values. The style is such that this volume reads very attractively, despite the fact that it is an intensely scientific monograph. Careful attention is paid to the source of information of each part of the subject, and the references are clear and distinct.

While the reviewer, or other readers, may differ with the ideas of the author here and there, one must admit that the author has chosen a middle ground wherever possible and that his views are, in the main, correct and succinctly expressed.

W. M. S.

**The Diseases of Infants and Children.** By J. P. Crozer Griffith, M.D., Ph.D., Professor of Pediatrics in the University of Pennsylvania. Two octavo volumes totaling 1,542 pages with 436 illustrations, including 20 plates in colors. Philadelphia and London: W. B. Saunders Company, 1919. Cloth, \$16.00 net.

In two large volumes the author has presented the most comprehensive work on children's diseases that has appeared in America. The past two decades have witnessed many changes in the field of pediatric teaching, and especially in the realm of infant feeding. Dr. Griffith has rendered a valuable service in recording not only the modern views, but in tracing the evolution of these views, and in inserting footnote references to original articles. The student of pediatrics therefore has at hand a veritable index medicus of pediatric literature. The work is adequately illustrated and the twenty plates in color are especially good. The physician using the percentage system of infant feeding will find the method explained in minute detail. The surgical affections of childhood and the special branches are discussed sufficiently for the needs of the physician treating diseases of children. As a work for reference, as a textbook and for valuable therapeutic suggestions Dr. Griffith's book deserves a place in the physician's bookshelf.

R. P. F.

**PSYCHOPATHIC HOSPITAL PETITIONS, WHETHER COMPLETELY OR INCOMPLETELY FILLED, SHOULD BE CERTIFIED TO AND SENT TO DR. MOLEEN AT ONCE. THEY MAY BE RECEIVED AS LATE AS JUNE 25TH.**



# Colorado Medicine

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L. B. LOCKARD, M.D., Denver.

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## Editorial Comment

### VIENNA'S MEDICAL TRAGEDY.

Vienna! The city that for years has been the Mecca of American physicians, young and old, who headed Europeward to drink deeper from the font of medical learning; Vienna, with whose name is associated off-hand a longer list of noted workers in medical science than with any other city in the world—Poltzer, Ludwig, Nothnagel, Billroth, Weichselbaum, Stoerk, Stricker, Neusser, Gussenbauer, Schauta—men of the past, and many renowned men of today who could be mentioned; Vienna, which represents to our profession an edifice of medical learning built upon research and experience, has had her walls demolished and her foundations rocked, and the devastation in medicine, surgery and public health due to the world war is comparable to the physical devastation of the battlefields. Hospital regimen is upset, supplies are woefully lacking, doctors are suffering privations, surgeons have become purveyors of meager food to starving infants, youths and adults.\* Pestilence is rampant; violence, lawlessness and crime are unchecked, and a peculiar apathy has seized the hungry and under-clad general populace.

Vienna has a population of some three million. The outlying country, being mostly mountainous, is unsuited to agriculture of any considerable proportions; little, if any, coal is mined, and the industries are largely limited to the manufacture of milk products and wines and the fabrication of imported raw materials. It is on this account that

Vienna suffers so severely and with so little mitigation, for she is not and never has been self-sustaining, but must depend upon import for the many necessities of life. Without minimizing the sorry plight of many other European centers, it seems that Vienna has the least chance of all at rehabilitation.

Among her hospitals are the famous Wilhelminen-spital, of seventeen hundred beds; the Allgemeine Krankenhaus, eighteen hundred beds; Rudolf-spital, fifteen hundred beds; Franz Josef-spital, five hundred beds; St. Rochus-spital, the same number, besides two large military general hospitals and another for officers only.

Dr. Franz Schoenbauer states that "At least fifty percent of the 1,700 patients in the Wilhelmina Hospital are victims of lung diseases of various forms. Many are children and adolescents. In normal times when the hospital housed from five hundred to six hundred patients, the proportion of tuberculous cases hovered at about the five percent mark. Medical practitioners, and particularly those working in the dispensaries, have found that, during the war and since, the number of tuberculous patients has more than doubled. Apathy and mental depression have taken hold of the population of Vienna to such an extent that persons suffering from milder maladies, such as rupture, who formerly frequented the dispensaries in imposing numbers, now rarely go there for attendance . . . the city is suffering from epidemics of dysentery, measles and grippe. . . . The spread of scabies gives one a measure of the indifference of our population toward domestic hygiene. The lack of soap, linen and washing and bathing facilities explains the apathy. Private and public hygienic institutions which before the war were such favorites with our

\*A rather remarkable interview with Dr. Adolph Lorenz on this subject will be found quoted on page 194.

people have sunk into disuse. With disease gaining ground at a startling pace, we medical men are deprived of the weapon which could do most to combat the danger, namely, wholesome food with which to nourish the patients. . . . Every patient whom we admit carries in his body a tale of the consequences of the war. Children of four often look like babies a year old. Some of them are brought in nearly skeletons as a result of prolonged undernourishment. We find an astonishing number of cases of rickets developing at an age when we should least expect it. Among the older patients diseases of the bones and joints are prevalent. Our supplies of linen and clothing have been exhausted."

In that hospital thirty-eight wards were set aside for children in a part of the building which was fitted out for steam heating and which required six hundred tons of coal a month in winter. The past winter only one hundred to one hundred and fifty tons a month could be secured, and, as a result, the temperature never stood higher than fifty above zero.

Medical and surgical supplies are so scarce that makeshifts are mainly used. Paper bandages have replaced gauze, ether and novocain are rarely available, neither quinine, cocaine, strychnine nor morphine is purchasable anywhere in the city; x-ray exposures are made upon photographers' print paper.

The Red Cross has not been idle in this field and is straining every effort to alleviate suffering and reduce shortages, but is facing an enormous task. The Rudolfinerhaus, the oldest and best-known training school for nurses in Vienna, which was founded by the famous surgeon, Billroth, has been re-equipped by the American Red Cross. The hospital supplies and equipment, medicines and food supplied have enabled Dr. Robert Gersuny, the director, to put the institution on its feet once more. The end of the war left the once famous hospital on the brink of financial ruin, with no funds to make urgent repairs, with the bed linen used up, no fuel in the cellars, and the nurses half starved. The nurses' home was unheated, and the nurses themselves were working

with much lowered efficiency. Many needed rest after months of overwork, but even for this no money could be found. Investigation of hospital conditions in disease-ridden Vienna has convinced the Red Cross that no effort should be spared to give the sick the benefit of the highly trained nurses of this school. With thousands crowding the hospitals and other thousands sick in the tenements of the poorer quarters, with epidemics sweeping the city and with total absence of essential drugs, Vienna faces one of the most serious situations in her history. The doctors and surgeons of the Viennese hospitals have declared that they cannot live on the present rate of pay and threaten to go on strike unless their salaries are immediately raised by the municipality. Their present remuneration is less than that of the lowest day laborer and they consider that they should have pay at least equal to that of the washerwomen in the same hospitals.

Madcap dancing has seized the people of Vienna, and little boys, crazed by hunger, attempt murder, according to American Red Cross reports.

"There are rations for three weeks," said a Red Cross investigator, writing in February. "People are apathetic, fatalistic and tired. There is an epidemic of dancing. I visited a dance attended by 4,000 persons, one-half of whom had had no dinner. They danced until exhausted, refusing to go home."

Profiteering in milk is responsible for the death of hundreds. Statistics gathered by the American Red Cross show that 50,000 persons were suffering from influenza in the Austrian city, and three-fourths of these were unable to obtain medical attention, deprived of medicines and nourishing food.

Milk, most indispensable of foods for the patient, is virtually unobtainable for any but the sick, who are paying as much as ten dollars a quart to the profiteers who control the output. The municipal government has forbidden the consumption of milk by any but sick persons and infants. To evade this ruling profiteers sell a seventy percent dilution of milk to the poorer customers, re-



serving the more nourishing whole product for those who can pay their price.

When American relief workers in Vienna called the attention of the city authorities to the appalling mortality due to unscrupulous profiteering, the officials replied that the impoverished state of the city treasury rendered impossible any organized and effective measures to suppress the practice.

The city which once stood upon the highest plane of science and art has in a short period fallen into a gulf of the deepest degradation and misery. What will be its future? Will it be and remain a city of listless, resigned, apathetic people, as a finale to a huge tragedy, or will a fire of regeneration blaze up, hospitals be fully restored and replenished, disease overcome, new laurels won by its surgeons and a greater Vienna rise upon the devastated ground of the old? It will depend to a large extent upon outside help. Vienna is down and has no strength of her own to rise.

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#### AN OPEN LETTER TO MR. JOHN C. SHAFFER.

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July 8, 1920.

To Mr. John C. Shaffer, Editor and Proprietor, the Rocky Mountain News, Denver, Colo.:

Dear Sir—The editorial columns of the News have within the last year occasionally contained some "medical stuff" in refutation of which I desire to present the following facts:

Modern medical science has made great progress during the last fifty years and, though the treatment of disease through medical and surgical measures has been marvelously advanced along scientific lines, the greatest scientific medical achievement of this period has been accomplished in the field of what is known as "preventive medicine."

Preventive medicine, or the prevention of disease as in contradistinction to its cure, has, in part at least, depended for its development upon animal experimentation and the trial and proof of many of its processes and results upon animals and men.

In this work not a few medical men have

offered themselves as laboratory material for the trial of theories and conclusions, the truth or falsity of which could be demonstrated in no other way, and a number of them have sacrificed their lives to the cause of humanity as a consequence, as did Walter Reed and others in demonstrating the transmission of yellow fever through the mosquito.

It will be conceded by all fair-minded men of average intelligence that this research work, carried on so earnestly and unselfishly by the best trained and most capable men in the medical profession, has always been conspicuously free from selfish motives either for themselves or for the profession in general, and that the very results sought and attained at such cost were directly antagonistic to their own financial interests.

One need not be a physician to know what this scientific work of the medical profession of the world has accomplished for mankind, as the fearful cost in life and wealth caused by the ravages of yellow fever alone on our Gulf coast and in the Mississippi valley and the months of quarantine restrictions will be remembered by every man of mature years. When added to this we compute the cost of malaria and its influence in retarding the work of the world, as in the canal zone; that of bubonic plague, hookworm disease, typhoid fever, diphtheria, typhus fever, sleeping sickness, tuberculosis and smallpox, we have presented a frightful toll of death and disaster from which it has become possible to free the world through the efforts and endeavors of medical men in destroying the very agencies through which they had indirectly derived a livelihood.

The mosquito in Panama did what in four years the great armies of the Kaiser failed to do. He defeated the French. He was then in turn conquered by General Gorgas with the weapons of modern preventive medicine, making possible the success of Goethals where DeLesseps had failed.

All of the above mentioned diseases are now preventable if the precautions known to be adequate for their prevention could be strictly and rigidly enforced.

For the attainment of this much-to-be-desired end, untold effort, energy and sacri-

fice have been necessary on the part of men of my profession; animal experimentation under the highest ideals of humanitarian effort to prevent unnecessary suffering has been essential, and the employment of preventive measures has been made so safe, sure and secure that the factor of safety in them and the absolutely satisfactory results attainable fully justify all of the slight discomfort, inconvenience and risk that could attend the employment of these preventive measures under all conditions, favorable or unfavorable for their employment.

I purposely avoid quoting statistics, as the records of every civilized government in the world will substantiate what has been said. Before the world war, for example, there had not been for some years a single case of smallpox in the German empire other than those brought over the border from other countries, owing entirely to the strict enforcement of the law regarding the vaccination and revaccination of all German citizens.

The comparative record of the Spanish-American war with that of the war between Japan and Russia and of the recent great world's war in the morbidity and mortality of typhoid fever is a matter of common knowledge, and it may now be said without fear of competent contradiction that typhoid fever and diphtheria are absolutely preventable diseases and that illness and death from typhoid fever and diphtheria are crimes against humanity for which someone should be held strictly accountable.

I am a believer in the largest and broadest personal liberty for all mankind in all matters pertaining to religion and the treatment of disease in individuals, but I deplore and resent the attitude of any man who opposes his personal religious or medical beliefs to the execution of the proved methods of **prevention of disease** through his folly in maintaining that he has the right for himself or for his family to serve as a culture medium and carrier of such diseases to others. This is a frightful responsibility for any man to assume, and if he add to that responsibility by preaching his opinions and promulgating his propaganda through such mediums as may be at his command he adds to that burden a weight of accountability from which

almost all conscientious men would shrink.

The above is presented to you in the hope that you may be led to see and so be brought to an appreciation of **your accountability** in permitting your son, Kent Conser Shaffer, to use the editorial columns of the News to preach, in his feeble and puerile way, his religious opinions and medical beliefs regarding vaccination, vivisection, the scientific management of hospitals and other medico-religious subjects about which he so evidently knows so little. That he makes himself ridiculous is immaterial, but that he also impairs any influence the editorial matter of the News might otherwise possess and reflects upon the intelligence of the readers and the regular editorial staff of your paper may be of moment to you regardless of the harm he may do in other ways.

To employ "the power of the press" to promulgate propaganda against the employment of modern scientific methods of disease prevention is an atrocious and an abominable thing to do. May I not assume that you, with your years of discretion and experience in the affairs of the world, can be brought to see this and that you will put forth a kindly paternal restraining hand and admonish your sophomoric son against the exercise of his meager and mediocre medical knowledge and his unhealthy and unscientific religious zeal in bringing the News and its editorial staff into disrepute and, maybe, influencing a few feeble-minded fanatics to resist the employment of those preventive measures which are devised not only for their good but are necessary for the protection of others who are not obsessed by the fear which fanaticism always breeds?

After all, as the proprietor and managing editor of a number of large, and presumably influential, municipal daily papers, can you conscientiously ignore your accountability to humanity in an important matter such as this? Can you sleep o' nights with this thing upon your conscience? Can you not, in view of the facts quoted above and because of the knowledge you, as a well-informed man of the world, must have, appreciate that **the medical profession and medical men as individuals have nothing whatever to gain through the prevention of disease**, and that



they urge it and promote it, give its benefits to their loved ones and administer it to others (often without pay) in a spirit of true altruism and because they KNOW that it prevents disease and saves human life and that its employment is free from serious risk of any kind, and that such measures as are used for the prevention of such diseases only upon rare occasions give rise to slight and temporary discomfort? Typhoid fever, diphtheria and smallpox alone of the list given above require any invasion of the "personal rights" or "medical freedom" of individuals, but in these diseases the results attained by modern prophylactic and curative measures are such that the greatest good to the greatest number justifies any inconvenience or personal hardships that might be imposed upon the few for the benefit of the many. As a matter of fact, the most rabid and unreasoning objectors to such prophylaxis know in their hearts that no real personal risk and only slight discomfort in a few instances accompany the use of these preventive measures; but the truth is not in them. They belong to a group of "willful persons" who are not amenable to reason and who should be governed for their own good and the good of those about them by wiser, more scientific and more healthy-minded people, for they must be cured and immunized, against their wishes if need be, as a measure of protection to those about them.

That unholy alliance made up of medico-religious fanatics, quacks and crooks of irregular pathies and advertising patent medicine fakirs, known as "The League for Medical Freedom," appears to have a mysterious hold upon certain unscrupulous newspapers, whose proprietors and editors are willing to aid their cause. To be sure, the advertising of Tanlac and Lydia Pinkham and the cure of "lost manhood" and the publication of the jargon of medico-religious cranks may be more profitable than rendering a service to humanity, but there are publishers, thank God, who are able to resist the appeal of their material argument and who decline to allow such "stuff" to appear in their papers.

The Rocky Mountain News has had a long and, upon the whole, an honorable career in

Denver, and has heretofore been regarded as a defender of the interests of the people in the broadest and best sense in which that phrase could be used. It would be a serious disappointment to a great many of the residents of this city if this fine old paper should now be prostituted to the cause of quackery and charlatanism and its energies devoted to the interests of the mercenary and merciless fanatics who are so irrationally and illogically opposing the finest and most unselfish achievement modern medical science has ever consummated—the prevention of the most deadly and disastrous diseases ever known to man.

Is it too much to hope that you will be able to see this great subject in the light here presented and that your co-operation and that of the Rocky Mountain News may be enlisted in the cause of humanity, and that the unselfish example of the medical men of the world in this important matter may be an inspiration to you to do what may be in your power to help certain narrow-minded and self-centered people to a place in the sun from which they may be able to see beyond their own shadows and become interested in and so promote "the greatest good to the greatest number" of all mankind?

Sincerely and faithfully yours,

HORACE G. WETHERILL, M. D.

## *Original Articles*

### **THE MANAGEMENT OF UNUNITED FRACTURES.\***

HORACE G. WETHERILL, M.D., and CUTHBERT POWELL, M.D., Denver.

It is primarily of the utmost importance in considering the treatment of ununited fractures to bear in mind that not infrequently union may be delayed for various reasons for a short, or even for a relatively long time without any apparent cause, and that in most cases of the kind satisfactory and firm union of the fragments may occur

\*Read by Dr. Powell at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1919.

if they be maintained in apposition and correct alignment till this can take place. It is, therefore, important to impress this fact upon the patient, and to resist the impulse, too often yielded to in the last ten years, to resort to some form of open operation. Plates, nails, wires, clamps and bone grafts have too frequently been employed when better and quicker results could have been procured with the aid of such local and constitutional treatment as should be familiar to us all. Even when open operation is necessary for the satisfactory reduction of refractory fragments, the removal of foreign bodies or the replacement of intervening structures, it is often better to use no wires, screws, nails, plates, or clamps to hold the fragments together, for they are frequently quite unnecessary. When placed in exact apposition the ends of the bones will usually stay in place, and can be held with ordinary splints, and will unite more readily and soundly without the foreign body than with it.

Exact apposition of fragments is, of course, desirable when fractures are reduced and put up in splints; but it is far from being absolutely necessary for sound union or restoration of perfect function. Much misleading misconstruction of x-ray plates has, in the past, led to unnecessary, meddlesome and mischievous surgery upon fractures that would better have been left undone. Detached bone fragments and blood clots have been removed in many compound or even simple fractures when better and quicker results would have been got had they remained undisturbed. The very important part that these small fragments of bone play in the processes of reconstruction and reunion was conclusively shown by Sir William Macewen in the experiments reported in his monograph, *The Growth of Bone* (1912).

Soft parts, such as fragments or bands of muscular fibers, tendons, strips of periosteum, etc., may, indeed, serve to effectually prevent union if they intervene between the ends of a fractured bone, and, of course, foreign bodies, such as bits of cloth or of metal, would, if intervening, be an effectual bar

to union. The part played by the periosteum as a "limiting membrane" to prevent the overgrowth of bone was also demonstrated by Macewen, who was the first to teach that it had no osteogenetic function, serving chiefly as a barrier to the growth of bone. It is, therefore, quite easy to understand how a strip of periosteum, lying between the ends of the broken bone, might—indeed, would—almost inevitably prevent union.

The stimulating and activating effect of attrition in promoting union in both delayed union and actual disunion of long standing must never be lost sight of. Putting a patient with a broken leg upon crutches, or with a cane, with instructions to walk, bearing weight on the damaged leg, will frequently bring results when other measures have failed.

Recent events, particularly the vast opportunities offered by the world war, have about finished the vogue of various buried metal devices, such as screws, nails, wire and Lane plates. Such devices were losing favor and prestige very rapidly previously to the war, but have now been so generally discarded as to have few to champion them or advocate their use, except under most unusual and exceptional circumstances. Clamps of the Parkhill-Freeman type have a very definite field of usefulness, and, in the hands of one skilled in their use, they should take the place of all buried metal devices of any and every kind.

Far and away the best means now available for restoring union in actual and established ununited fractures is the autogenous bone graft. Its function and application are now well understood, thanks to Macewen, and it presents, when properly applied, much the safest and surest means as yet available for bringing about union in established ununited fractures, particularly those of the long bones of the legs or arms.

The intramedullary graft, as first used by Murphy and others, is now known to be wrong in its primary physiologic principles, and should never be used when the inlay graft can be employed. The importance of approximating the bony structures like to



like is now fully appreciated and, though it has no osteogenetic function, the periosteum should be preserved uninjured on the surface of the graft and all the layers of the bone should lie like to like from the periosteal covering to the bone marrow. Just what important function this periosteum plays may not be fully understood, but that the results are better when it is retained upon the graft is unmistakable.

Illustrating what has here been said regarding the various methods of treating ununited fractures, we desire to report a case upon which a number of these various methods were tried, all without success, till the inlay autogenous graft finally was used, with most satisfactory results.

### Case Report.

On April 29, 1916, H. A. B. sustained a fracture of the right tibia and fibula in their middle thirds by being struck on the leg by the broken end of a high-speed belt. The patient was taken that evening to a hospital, distant seventy-five miles, where, on account of swelling, the leg was put in a fracture box without attempt at reduction. Eight days later, under anesthesia, reduction was attempted and a cast applied. Two weeks later, or twenty-two days after the accident, an x-ray examination showed overlapping of the fragments, with no attempt at union. The cast was thereupon removed and extension, twenty to thirty-five pounds, applied for a period of five weeks.

At the end of this time, two months from the date of accident, union not having taken place, an open operation was suggested and arrangements made for the patient to go to Chicago. He entered Augustana Hospital July 14, 1916, and two days later an intramedullary bone graft eight inches in length was placed in the tibia and a Lane plate applied to the fibula.

September 30th, two months and fourteen days after the operation and five months from the date of accident, he left Augustana Hospital for Colorado, wearing a cast, returning December 1st for examination. The x-ray showed no union at this time. A new cast was applied, and in March, 1917, upon

further examination at Augustana Hospital, he was told that the fibula had united, but that the tibia still failed to show signs of union. After another month, with the tibia still ununited, another operation was advised. The patient then decided to place himself under the care of another surgeon, and in the latter part of April, 1917, a year following the receipt of the injury, he entered St. Luke's Hospital, Chicago, where on May 2nd a Lane plate was applied to the ununited tibia. This plate was removed six weeks later, and on July 1st the patient was sent home, to return in eight weeks for examination. September 1, 1917, x-ray showing no union, the patient was anesthetized, the ends of the bone freshened by means of a curette, and a cast applied.

In February, 1918, a year and ten months after the accident, the patient consulted the writers. Examination showed rather free mobility in the middle third of the right leg and a scar along the anterior aspect of the tibia about nine inches in length and adherent throughout nearly its whole extent with a discharging sinus in the middle third of the leg. An x-ray plate made February 18th showed no union of the tibial fragments and only a slight attempt at union of the fibula.

On February 22, 1918, under ether, the site of the fractures was exposed, the plate removed from the fibula, and the intramedullary graft, with difficulty, removed from the tibia. It was necessary to chisel away the tibia anteriorly over the greater part of the graft in order to lift it from its bed. The old sinus tract was curetted and cleaned with pure carbolic acid, followed by alcohol. Antiseptic dressings were applied. After seven weeks in bed, during which time efforts to obtain healing of the soft parts and a clean surgical field met with fair success, it was decided to apply an inlay graft to the tibia, although the old sinus tract had not entirely closed.

On April 16th the field was thoroughly cleaned, ninety-five percent carbolic acid run into the sinus, and the tibia exposed. A graft six inches long was taken under strict surgical asepsis from the opposite

tibia, a bed cut, the graft applied, and the wound closed. On account of the scar tissue present, it was impossible to completely cover the wound, necessitating a partial filling by granulation.

The graft took well and union was complete in approximately twelve weeks, when the patient was discharged from the hospital (July 15, 1918).

The subsequent history was uneventful, but for two exceptions: one, the fact that the sinus which had persisted since September, 1917, continued to discharge during the process of union of the tibia; the other, that in October, 1918, upon throwing his full weight suddenly on his right leg, he sustained a fracture of the tibia below the site of the first fracture, as shown by the x-ray. There was no marked displacement of the fragments at this time and union progressed normally under ordinary fixation in a plaster cast.

Upon examination in August last, union was found to be solid, his old sinus healed, and the patient able to walk without a cane and with no perceptible limp.

936 Metropolitan Building.

#### DISCUSSION.

**W. W. Grant, Denver:** Long before we entered this war, two surgical friends in Chicago who were in the service of the English government had done a great deal of operating, particularly on fractures. I asked one of these gentlemen, who came through Denver before reaching his home, particularly as to the use of the Lane plate; he said, "I discarded it entirely." He said there might be a few cases in the transportation of patients, to secure at least temporary fixation, where it would be used, with the expectation that it would be ultimately removed. It has been his experience in civil life that a large proportion of plates had been removed. I believe the surgical profession has followed the customary course in carrying to the extreme any innovation, the same as in medicine. I have no doubt of the unsatisfactory use of the Lane plate in civil practice. It is a safe prediction that the inlay bone graft, which Dr. Powell has extolled on this occasion, will be abused quite as much as the Lane plate ever was. I haven't much doubt about it. It requires more manipulation of the fragments and just as much exposure, but, being an autogenous graft, stimulates osteogenesis.

Nothing is said about the condition that is not uncommon in cases of delayed union—the constitutional condition of the patient. I have seldom seen a case of delayed union except in cases where there was some constitutional defect, such as syphilis or other constitutional infection, and in these cases you need not expect union. If you have good apposition of the fragments and the patient's

constitutional condition is all right, with ordinary fixation you will get good union, and without all these appliances and the dangers of infection which have been so common with the Lane plate. I never appreciated exactly the extreme view of Lane as to asepsis, in which he maintains that only a sterilized piece of steel should touch the bones or fragments in any way whatever. He puts it out of the power of most men to apply the Lane plate properly. I think that a sterilized gloved hand is about as safe, although bone is very susceptible to infection, and I never hesitate to use my fingers when I know they are clean, especially with sterile gloves. I think, therefore, if we come back to the old principle of fixation in the simplest possible way we shall, as a rule, get the best results if the fragments are in good position. In delayed union there is something else than a mere local pathological condition that has prevented union. Where the parts are not in apposition and are extremely overlapped, then it is, of course, necessary to reduce the fragments, and it may be necessary to use fixation apparatus. I believe the clamp, the old Parkhill clamp as modified, is about as safe a method, and, in fact, safer than those which require exposure and manipulation of the fragments, because this instrument can be applied without it. There is the great advantage that its application does not interfere with or involve the ends of the fragments, and it is therefore a safe apparatus, and I believe should be more generally used than it is, and the Lane plate less used. I think that Mr. Lane is about as extreme in his advocacy of the plate as he is irrational in resecting the large gut because it is a "sewer."

**C. B. Lyman, Denver:** The subject of delayed union is an extremely interesting and a very important one. Dr. Grant has struck the keynote when he says that many of these patients are syphilitic, for that has been my experience also. It has been my experience that it does not make a bit of difference what methods are used, whether bone graft, Lane plates, or the external clamp, one will fail to get union. I have in mind a case of that kind in which I did an operation a year ago, which was the fourth operation that had been done—the patient had two operations by bone inlay in another city; he had a Lane plate applied, and before I did anything an investigation was made. He had a positive Wassermann, was put on syphilitic treatment for some time, and then the ends of the bones were refreshed and an external clamp put on and the bone united as promptly as in any case. As far as Lane plates are concerned, I have nothing to say, except to condemn them—I have taken out something like twenty, but have never put one in; I never could see that there was any surgical basis for the implantation of foreign material of that kind. I have never seen a case yet where the Lane plate has been used that it did not cause a great deal of irritation. With regard to use of bone graft, from my own experience I am unwilling at the present time to say that they are any better than some of the other methods which we use. The simpler our methods are in the handling of all fractures the better it will be for our patients. The majority of fractures can be handled without operative interference, provided one thing is certain, namely, that there is no foreign material interposed between the ends of the bones; this can not absolutely be determined by physical examination, or by x-ray picture in every case, and an operation is required to establish the fact. At operation one can see the fracture, and I agree with Dr. Grant, a large percentage of them will stay in place without any appliance if all foreign



material is removed from between the fragments. If we have a fracture that is apparently transverse, or serrated, accurate apposition will maintain the ends in that position and union will take place. The statement has been made by many men using Lane plates that they use them with the idea that they are a splint, and not simply for the purpose of maintaining the bones in apposition, which is a wrong principle.

**C. F. Hegner, Denver:** Mr. President, some eight or nine years ago when Lane visited America, he gave a clinic in the Cincinnati Hospital. His technic is wonderful and he does effectually complete his work without touching his fingers to the wound, which, I think, is a very desirable thing. He, like most of us, had occasion to complain of the texture, the fiber, the condition of the bones presented in the cases upon which he operated. I don't know that the Cincinnati patients in the general hospital are any worse than they are in any other hospital of that character. They were constitutionally below par. Fortunately, though, his results were very good. It was my misfortune to have to remove two of the four plates that he applied. I, on several occasions, used Lane plates, and in three or four other cases I operated to remove them. You will notice from the pictures that Dr. Powell showed that the fragments of the tibia were kept apart. This was effectually done by the fibula which had been united. If at the same time they removed the plate from the fibula the ends of the fragments were resected sufficiently to permit approximation of the tibial fragments, it probably would have saved the man two or three very serious operations. The bone plate does that just as effectually in many other instances by keeping the bones apart. Since I have come to Denver I have removed two plates that have been applied by men in other parts of the state, and without any manipulation, other than taking away the callous that enclosed the plate, so I was able to secure firm and permanent union in a reasonable length of time. I do believe that the manipulation, if an open operation is done, should be done, if possible, without inserting the fingers. Anything other than an instrument is pernicious. In speaking of the constitutional condition, of course, syphilis is the primary factor. There is another thing we have used with success, and that is thyroids in cases where bones failed to unite, in cases where there was no syphilitic infection. The thyroid is the chief gland that seems to control or influence metabolism, and I believe it would be a splendid thing to try whenever you have delayed union in which there is no mechanical interference with bringing the bones together.

**G. W. Miel, Denver:** I want to give my endorsement to the paper of Dr. Wetherill and Dr. Powell. It is certainly very refreshing to find these men, who are capable of good operative work, as conservative as they are. I hate to operate fractures, and in my moderate experience, which has been rather satisfactory, I have gotten along with few operations. I think that operation has been taken as a shortcut by a number of the younger surgeons who are without the fundamentals in the appreciation of fractures, that men were apt to have before operative surgery was accepted so readily as a recourse. Some of the material that has been employed in dealing with these injuries is not as objectionable as the Lane plate. I have never used a Lane plate, but in watching the literature on the subject I have noticed that some operators have success—Dr. Adams of Pueblo, for instance, in some sixty-five cases of fractures involving the tibia, reported at

one of our meetings not long ago—while others have not as encouraging success. There must be something of merit to build up this reputation of Dr. Lane. I think in handling these cases that a great deal of injury can be done to the bone, not simply by the introduction of screws, but in handling and holding the bone with tiger-tooth forceps or other similar instruments. I have seen the bone split in this way on several occasions, which was unfortunate, to say the least. Wire, silver wire, I think has served a good many well, and it is seldom that the wire has to be removed. I say this from a small experience. In the matter of syphilis as a cause: I do not doubt that is an important and a common cause, but we will not find syphilis as commonly distributed among the people as implied. Syphilis, like tuberculosis, carries broad shoulders, just as altitude carries broad shoulders—too broad—there is too much dumped on it.

**Dr. Powell (closing):** It is gratifying to have Dr. Grant emphasize what we attempted to bring out in this paper, that time and constitutional treatment will take care of most of these fractures in delayed union. And the statement was made that we do not advocate the use of appliances, but rather deprecate the use of any appliances on the bone itself; but if something must be used in certain rare cases, we feel that the inlay autogenous bone graft is preferable to any non-absorbable foreign matter which may be placed in the bone. I am sorry that I had the slides run so fast that Dr. Hegner did not see that the fibula was not united at the time the Lane plate was removed, when the patient first reported to me. That bone had nonunion, and upon removing the plate there was no separation of the fragments of the tibia. The tibial fragments were approximating. This did not require several operations; there was one operation to remove the foreign bodies, the Lane plate on the fibula and the intramedullary bone graft, and following this with a clean field an inlay bone graft was attempted some six weeks later, with the results which we have shown.

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## MEDICAL WORK OF THE FEDERAL BOARD FOR VOCATIONAL EDUCATION.

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**B. A. FILMER, P. A. Surgeon, U. S. P. H. S.  
(Reserve), Washington, D. C.**

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It has ever been the wish of the American people to make ample provision for the comfort and welfare of those called to their country's defense. Realizing that, besides the lives it snuffs out, war invariably reduces the earning power of thousands of its victims, our people expressed their desire, in so far as it was possible, to restore or replace this lost ability to earn a living. Congress crystallized this sentiment into concrete action by the enactment of several bills creating an organization known as the Federal Board for Vocational Education.

In creating this board and outlining its duties, Congress provided:

"That every person enlisted, enrolled, drafted, inducted, or appointed in the military or naval forces of the United States, including members of training camps authorized by law, who, since April 7, 1917, has resigned or has been discharged or furloughed therefrom under honorable conditions, having a disability incurred, increased, or aggravated while a member of such forces, or later developing a disability traceable in the opinion of the board to service with such forces, and who, in the opinion of the Federal Board for Vocational Education, is in need of vocational rehabilitation to overcome the handicap of such disability, shall be furnished by the said board, where vocational rehabilitation is feasible, such course of vocational rehabilitation as the board shall prescribe and provide."

It is the consensus of opinion that those who had been taken from their peaceful vocations and made a part of the military establishment and had, through disease or injury incident thereto, suffered any loss of earning power, should in all justice be given the opportunity to recuperate their lost abilities. But it is extremely doubtful if the people, Congress, or the Federal Board had a full conception of the vastness of the problem involved. When it is recalled that over five million men and women were called into the service, any one or all of whom may, justly or unjustly, claim training under this board; all of whose claims must be investigated and training be provided for those entitled to it—when these facts are recalled, the gigantic task confronting this board may be, to a certain extent at least, appreciated.

It is not intended in this article to discuss the activities of the entire board, but to consider only the work being done by the medical section. This work is of two kinds. First: examining all applicants for training, estimating the degree of their handicap, and determining the feasibility of the proposed training. Second: supervising the men in training, to insure proper training

surroundings and living conditions with the view, not only to prevent any impairment of health and physical power, but, if possible, to improve them.

To accomplish such a task will require many hospitals, sanatoria, nurses, doctors and money. It calls for brains, skill and organization. It has been found best to utilize the facilities of the Public Health Service to successfully meet all the demands of such a comprehensive plan, and as personnel and equipment are made available the work is being expanded.

At first, as was expected, the main work was examining those applying for training. In many cases this has not been difficult. Those having some manifest disability whose military and hospital records are available are soon cared for. Others with less severe injuries or whose hospital and military records are not available must be more carefully considered. Those whose injury or sickness was so slight and trivial that it received little or no attention, or was not considered of sufficient importance to be made a matter of record, all come up to plague the examiner, for he must not only determine the existence of a disability, but decide whether this disability could possibly have originated from the cause to which it is ascribed.

Another class difficult to determine is that of those who had suffered some accident, as a fracture or dislocation, prior to entering the service; or of those who had some physical disability, as a healed tuberculosis, heart lesion, or some congenital or acquired defect, which has been increased or aggravated by the exposure and hardships of the service. But the most difficult, by far, are those who went through the war without mishap of any kind, but since discharge have developed some sort of disability. They blame their present condition on all kinds of things, from their typhoid inoculation at the beginning to spoiled food, poisoned water, crowded barracks, long hikes, exposure and poison gas. It is a wise examiner who can maintain his poise and trace back the present complaint to its remote and hazy cause, whatever it may be.



Without doubt, many men who suffered from no injury or sickness while in the service are at the present time more or less physically disabled from the excessive and unusual demands on their physical and mental forces by the exposure and strain incident to their military experience. These men no longer have the energy and ambition they formerly possessed.

Disabilities due to the effects from exposure to the poison gases are frequently difficult to determine. Very little definite information is in our possession upon which to base an opinion. It is something new in our experience, and we must feel our way cautiously, ever on our guard not to work the least hardship on the man who has been gassed by coming to a hasty or ill-advised conclusion. It is in these gassed cases, more than in any other, the need of a thorough physical examination with complete, comprehensive report of the examiner's findings is most essential if the applicant is to receive a just and proper rating of his disability and handicap.

Incomplete and insufficient reports of physical examination have been the weak spot in the work of the medical section. Doctors are prone to record just enough to arouse the board's curiosity, but nothing definite upon which to form an opinion. As one doctor, in submitting a very incomplete report, said: "This is a brief and hasty sketch of the physical condition of John Jones. But you know those symptoms of chronic bronchitis."

It has been comparatively an easy matter to get complete reports on examinations made in the district offices of the board or of the Public Health Service by properly instructing the examiners on duty there, but when the examination is made by the local physician in the home town of the applicant the problem is more complicated, requiring much correspondence and many re-examinations before a complete report has been compiled, all of which has delayed the game and disgusted everyone concerned.

Incomplete reports have been of two kinds: those in which nothing is told save a diagnosis, and those in which a careful

and detailed description of everything normal is given and the disability casually mentioned in passing, if at all. Most doctors have gladly supplied the lacking information and are now furnishing complete reports.

Occasionally, however, there comes in a report of physical examination similar to this:

"Gentlemen, I have been the family physician of the Jones family for over twenty years. I have known Sammy Jones ever since he was born. He is a graduate of our local high school, a regular attendant of Sunday school. He is one of our heroes who served his country throughout the war. I know him to be an honorable, upright, dependable boy and I am sure he will appreciate any training your board sees fit to give him."

All of which shows Sammy Jones lost either an eye or a leg. Or it may be like the report signed by a doctor appending to his signature the title "Lt. Col., M. C., U. S. A.," who stated the man "felt weak and had no appetite. Diagnosis: Chronic tuberculosis." A request for more information came back with a scrawl across the bottom of the page, "Diagnosis as made stands." But, as remarked before, most doctors are gladly cooperating and helping to make a success of this work. More or less friction is to be expected where doctors meet. It is the occasional flare-up that breaks the monotony of reading endless reports and reminds us we are living in America where we all enjoy "liberty and free speech".

The second phase of the medical work of the board is just beginning. Men in training are susceptible to acute illness and require medical care, treatment and operation which necessitates the use of doctors, nurses and hospitals, all of which are being supplied them by the Public Health Service.

The nervous and mental cases—the psycho-neurotics—those with crippled hearts, the tuberculous, present the future problem of the board. All require supervision and care. Many must spend months in sanatoria before training is to be thought of, and must be carefully guarded against re-

lapse while in training. Physicians competent to handle such conditions are being secured. A force of nurses and social workers is being built up which will cooperate in the follow-up work and after-care of these men. This work is ever expanding and will continue to increase and enlarge. The revelations of the war examining boards rudely awakened the American people to the great number of our people who are physically and mentally defective. The country realizes it owes a duty to the victims of peace as well as the victims of war. An indication of this is the recent bill passed by the Senate whereby the United States government will go fifty-fifty with the states in rehabilitating those disabled in industrial life.

A wonderful opportunity knocks at the door of the medical profession—an opportunity for service that demands the best brains and skill available. Those looking for large financial rewards would best look elsewhere. He who is ambitious to serve, not alone his own day and generation, but future generations for all time to come, may search the whole wide world and find no greater field for his talents.

### **MISLEADING CONDITIONS IN ACUTE SUPPURATIVE OTITIS MEDIA.\***

**JAMES J. PATTEE, M.D., Pueblo.**

In directing your attention briefly to a few of the misleading conditions of acute suppurative otitis media and mastoiditis, the writer desires to aid the general practitioner in dealing with some of the variations from the typical course of ordinary cases. It is unnecessary to dwell upon the clinical significance of otitis in general. There are a few conditions occasionally arising in otherwise classical cases which have a very definite positive significance. Though these particular symptoms point very strongly to definite destructive changes, they should be interpreted in conjunction with other symptoms rather than depended on alone in diagnosis.

**Discharging Ear:** The discharging ear, regarded as anything less than a destructive process which may lead to loss of hearing, mastoid complications, meningitis and other complications, is underrated, and hence, very misleading. There is no class of cases with their attendant complications which gives the physician more anxiety than suppuration of the middle ear. The old-time practice of advising a child with a discharging ear to postpone treatment until the child reached puberty has long since passed. Every case of discharging ear should be carefully treated, and the sooner the better. Procrastination is dangerous. The common error of waiting for the eardrum to rupture is a dangerous practice. A competent paracentesis should be performed early in the attack and the ear carefully treated until it is dry. The discharging ear, which is very much more prevalent among young children than is usually supposed, greatly impairs the hearing in later school life and in adult life.

**Bacterial Examination:** The predominating organism can usually be determined by bacterial examination of the discharge. This information is of great value to the attendant and aids him materially in the diagnosis, prognosis and treatment of cases in which he might be grievously misled without such knowledge. The infection most frequently met with and the one with greatest virulence is the streptococcus. The streptococcus capsulatus is especially virulent. Dench (Journal A. M. A., 1917) states the following: "The streptococcus capsulatus is always a dangerous organism and one which almost invariably demands operative interference." He further states that the cases must be watched with exceeding care and that no such case should be considered safe until the middle ear has returned to normal and the hearing has been restored. He has seen many cases which came to mastoid operation two to six months after healing of the membrane.

The pneumococcus is second in point of number and virulence. The staphylococcus, influenza bacillus and others are less frequent and less destructive.

In a protracted obscure mastoiditis with

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a mild symptom complex and with operative indications doubtful, but discharging the streptococcus capsulatus, one should operate promptly, where, on the other hand, conditions similar in degree but due to the pneumococcus might be continued along expectant lines.

**Afebrile Cases:** In ear affections fever is a very unreliable symptom. If it ranges much above normal, or if it is distinctly remittent and subject to exacerbations, the attendant, of course, will regard it according to its value in arriving at a diagnosis. Ordinarily fever occurs more often in children than in adults, and it ranges higher. The free anatomical communication between the middle ear and the neighboring regions, together with the nerve instability, accounts for the difference.

Many cases show no rise in temperature, or, at most, not more than a degree or two. It is not an uncommon thing for extremely serious cases to run an absolutely afebrile course. In adult cases when the earache ceases as soon as the ear discharges and the patient runs no fever, mastoiditis is very easily overlooked. There may be extensive caries of the mastoid cells and great bone destruction without elevation of temperature. Such infections are usually due to the streptococcus mucosus capsulatus. In this case the diagnosis may be still further clouded by absence of tenderness due to a thick cortex. The absence of fever in mastoiditis is not a contraindication to operation.

**Pain:** Pain is present in most cases of acute suppurative otitis media. It is severest previous to perforation or paracentesis. It ceases in a few hours after a competent incision of the drum membrane. If the patient suffers severely more than a day after a satisfactory incision, the case should be carefully watched and great suspicion of mastoiditis entertained. If pain over the mastoid recurs, it is peculiarly significant even in the absence of more pronounced mastoid symptoms. It has a peculiar psychological effect upon the patient and influences him for the operation more than any other symptom. Whereas, the presence of pain has a comparatively definite signifi-

cance, the absence of pain may lead us astray. In cases of great destruction of bone, caused by the streptococcus mucosus capsulatus, the most destructive germ with which the otologist has to deal, there may be no pain.

**Otitis Externa Simulating Mastoiditis:** Occasionally otitis externa so strongly resembles mastoiditis that a differential diagnosis taxes the skill of the expert. The symptoms and signs of the one constitute so perfect a facsimile of the other that functional tests and the skiagram are required to arrive at a correct diagnosis. However, the following differences may be noticed:

(a) In furunculosis, the classical type of otitis externa, the pain is less severe than in otitis media and it does not gradually increase in intensity as the case progresses.

(b) The pain in furunculosis is increased by pressure of the pillow when lying upon the affected side; also by movements of the jaws, while the same is not true in otitis.

(c) The most tender point in otitis externa is the tragus; in otitis media, the mastoid tip.

(d) Fever is unusual in furunculosis, while in otitis media fever, though slight, is the rule.

(e) Impaired hearing is less frequent and of less degree in otitis externa than in otitis media.

**Dissimilar Types of Swelling Over Mastoid:** There are two types of mastoid swelling. While these swellings are fairly distinctive, it is important to constantly bear in mind that the underlying conditions represented by these outward manifestations are vastly different. In one there is pronounced swelling behind the ear near the auricle. A copious discharge of thick pus drains from the meatus. The ear stands away from the head at an increased angle. The swelling fluctuates. These conditions occur almost exclusively in children, because at that age the cranial structures are porous and nonresistant, owing to incomplete osseous development. The lack of resistance in the cortex to the outward escape of pus and the free anastomosis between the

mastoid and the cranium favor abscess formation in the soft parts behind the ear. It is much safer for the pus to extend in an outward course and form a subperiosteal abscess over the mastoid than to progress inwardly toward the brain, where it might cause any of the varied complications of the vital structures encountered. The laity is quickly excited and greatly alarmed at a comparatively safe swelling behind the ear. Nurses, and even physicians, occasionally alarm these cases unduly. The parents welcome immediate operation. That these cases should be operated and operated early no otologist will deny, but what I desire to emphasize is that it is the other type of swelling that is really dangerous, whereas the kind just described is quite free from danger because the pus escapes outward, thus guaranteeing comparative immunity to the structures within.

The other kind of postauricular swelling occurs under very different pathological conditions and it presents a clinical picture which contrasts strongly with the previous one. It occurs chiefly in adults. The swelling appears in an otitis of long standing, perhaps as an exacerbation, and is located farther posterior to the auricle in the vicinity of the emissary veins. There is a feeling of induration or tumefaction. There may be edema. There is no fluctuation. The symptoms may continue for weeks before heat, redness and swelling occur. These are late signs. If these symptoms develop in a case of long standing otorrhea one may justly apprehend treacherous pathological changes in the adjacent cerebral structures. Sinus thrombosis is frequently uncovered beneath just such a picture.

A case of protracted discharge with toxic symptoms, even though the local symptoms seem unimportant, should be regarded with great apprehension, because it signifies extension inward, with the liability of any of the untoward consequences. The laity, not realizing the danger, is unconcerned about this kind of case and perhaps opposes operation, whereas, as previously stated, it consents readily in the case with subperiosteal abscess, which is quite safe.

**Copious Discharge:** The discharge of a large quantity of pus is a condition to which great importance should be attached. Ordinarily, the laity considers that the ear is doing well if it flows freely. Even very capable physicians are too often misled by a profuse discharge. The otologist has reminded him over and over again of the importance of drainage until he feels reassured when the ear flows freely. Drainage is essential. Though the statement seems trite, it can scarcely be reiterated too frequently. By drainage, however, we do not mean a copious discharge. The word has an entirely different significance. It implies an adequate incision of the membrana tympani capable of affording free, unobstructed escape of pus from the middle ear cavity. It implies that the pernicious habit of plugging the ear with cotton should never be allowed, but, on the other hand, the canal and incised drum should be carefully and thoroughly cleaned with applicators often enough to insure freedom from obstruction to the escape of pus.

A large volume of pus does not indicate a large perforation, nor a competent incision. It signifies that a large area is involved in the production of pus. The tympanic cavity is but a small chamber. A space so small cannot produce so large a volume. An excessive discharge means just one thing, namely, that the inflammatory changes have extended beyond the confines of the tympanum through the antrum into the mastoid. The tympanum and mastoid together produce the discharge. The period of the case bears an important relation to the flow. In uncomplicated cases the discharge should lessen or cease in the third or fourth week. Where it increases, mastoiditis should be suspected. To summarize, it may be said that in the third or fourth week of a case with inordinate discharge, even if most of the classical symptoms are wanting or seem unimportant, the mastoid should be opened without delay, because such cases are dangerous.



## DISCUSSION.

**W. C. Bane, Denver:** Dr. Pattee has chosen a practical subject and emphasizes the most important points. It is important to institute treatment that may assist nature to overcome the disease of the middle ear, destroy the organisms, and cause a cessation of the discharge, the kind of treatment being governed by the indications in each individual case. True, temperature, or absence of temperature, if taken in connection with the other symptoms, is a very important guide. Frequently in very young children with some acute disease that has abated there is a sudden rise in temperature and the attending physician is unable to account for it. Examination of the ear in such cases will often reveal the cause of the elevated temperature in a red bulging membrana tympani. With free incision and drainage of the ear there follows relief. Pain is one of the earliest and most important symptoms. In nearly all cases of acute otitis media there is congestion of the mastoid. Recurring pain in the mastoid, as pointed out by Dr. Pattee, means extension of the disease. One of the most important conditions, that to many is misleading, is pain in the ear, which often becomes manifest about five days after the incision or perforation of the drum head. In these cases the opening is closing, the drainage is not free, but under pressure, and reincision is called for to give relief. In mastoiditis, when the interior is necrotic the pain in the mastoid may subside and most of the tenderness disappear, yet an operation is urgent.

**C. A. Ringle, Greeley:** One of the misleading appearances of mastoiditis is the bulging of the posterior-superior wall of the canal. This bulging is so sharp and so definite as to mislead even a specialist into incising the posterior wall of the canal without ever getting at the drum. This bulging, of course, is one of the symptoms of mastoiditis, there being an inflammation of the periosteum covering the thin bony walls between the canal wall and the mastoid cells. Even where we get below this swelling and lance the drum we get very unsatisfactory results as to discharge, and I do not recall a case where there was such a condition but what it eventually terminated in operation. Another important symptom of mastoiditis, all other symptoms being absent, is the extreme prostration of the patient. He is prostrated from the first and his prostration continues until operation and recovery have occurred. At the outset the symptoms are more violent and the prostration is early. I might recite the symptoms of an atypical case that came to me, the patient complaining of a noise in his ear. The drum was normal as compared with the fellow drum. I treated him along for some time in an expectant manner. I asked him how his appetite was and he said, "Appetite is good." "How do you sleep?" "All right." "Well, don't you feel depressed; have you your usual strength?" "Why, yes; I work every day." He consulted a specialist in Denver, who decided that it was nothing more than an ordinary case of partial closure of the eustachian tube. The patient returned later and I lanced the drum, with a discharge of thick pus. The drum healed and the usual condition continued, but eventually the case ended with a mastoid operation.

**T. J. Gallaher, Denver:** Dr. Pattee has very thoroughly covered the subject, and his suggestions, if followed, will certainly prove satisfactory in results. We should make every effort to prevent these acute cases from becoming chronic.

The proper and early incision of the membrana tympani is of the greatest importance. After incision the patient should lie as much as possible on the affected side to encourage drainage. When the mastoid becomes involved, surgical intervention should be made without delay. It is the consensus of opinion among experienced otologists that any case showing profuse discharge for from three to six weeks should have mastoidectomy performed. This almost always insures complete cessation of discharge, with preservation of hearing. It is surprising to see the large number of cases which are permitted to become chronic by failure to operate at the proper time.

**F. B. Stephenson, Denver:** I believe Dr. Pattee mentioned only very casually the use of the x-ray in these cases. Now, I don't know of any pathological condition that shows up more beautifully with the x-ray than the mastoid that is filled with pus when stereoscopic plates are taken, and if the plates are taken of both sides and the mastoids compared the difference is so marked that the evidence is very convincing. The mastoid on the one side may be very dense and a very dense bony structure be taken for pus at times, so that it takes an experienced roentgenologist to make the distinction. It seems to me the use of the x-ray is a very important thing to consider in obscure cases.

**H. J. Baum, Denver:** I think the point of the x-ray brought out by Dr. Stephenson is of interest to us because I believe we otologists and others probably have been led to depend too much on the x-ray in arriving at a conclusion regarding operation. I have seen a number of cases myself, and I know that the other men with whom I have had occasion to discuss the matter have seen a number of such cases in which the stereoscopic pictures were taken by very competent men and in which a conclusion to operate may have been arrived at by the result, but the patient given the benefit of a few days' delay, with improvement and eventual cure without operation. And, should the decision to operate be carried out, we may find when we get into the mastoid that the thickening of the mucous membrane which is very likely to result from any severe otitis media has thrown enough of a shadow so that the conclusion has been misleading. I believe in some of these cases the picture is too definite. The doctor says that it is very definite and positive. I think sometimes it is too positive—that is, even with the experience of our good x-ray men in interpreting these cases, they are sometimes misled to advise an operation in a case that would act well without an operation; not that I believe in waiting too long for mastoids to get well, because we are sometimes led into that error and then may have a chronic condition, but none of us cares to operate on his patients if he can get them well with a reasonable amount of conservative treatment. Although I believe in the use of the x-ray, and I think we all should, still I do feel we should be very conservative in interpreting the results of the x-ray examination.

The matter of pain is, of course, important, but pain is also very likely to be misleading, especially in its absence, as Dr. Pattee mentioned. I have had one case recently in which the man had no pain whatever, no swelling whatever; he had none of the classical symptoms of mastoiditis except the persistent discharge, and yet he developed a very definite labyrinthitis, and when I saw him he was suffering from an acute serous labyrinthitis. He recovered after operation, but he was a very fortunate man.

Bacteriology is another thing very frequently



misleading. We have been told that the streptococcus mucosus capsulatus is most likely to cause bone destruction and to be followed by intracranial conditions. This is undoubtedly true, but I think all of us that have studied the bacteriology of mastoiditis and otitis media have seen cases get entirely well, giving no trouble whatever, which showed a pure culture of streptococcus mucosus capsulatus.

**W. F. Singer, Pueblo:** I want to say a word from the standpoint of the general practitioner with reference to incipient otitis media. In the first place, it is very common for me as a general practitioner to get a history of a little youngster who had been coughing for a week or ten days and then been taken for a ride in an automobile or had been chilled by the wind blowing on the side of his neck and head, and who that evening had begun to cry with an earache; he had been put to bed and had cried for a long time; perhaps the next morning he felt better, and maybe his people allowed him to get up and he ran around and played all day. Towards evening his mother said the moment he went to bed he developed an earache again. In a few days he had not alone a returning earache, but an established otitis media. Now, it seems to me a matter of a good deal of importance which should be brought to the attention of the general practitioner that the time to begin to treat these cases is when they are right in the incipient stage, when the general practitioner first sees them. It has been my custom the moment I get hold of such a case to realize first what has happened—he has had a reduced resistance, he has been coughing, and evidently has some type of infection in his throat. He has, either through the blood or as a result of his coughing, an infection of the middle ear. That is the situation. Now, he is beginning to cry with the earache, and he is adding further to the infection as the result of his crying. It is my custom to put this child immediately to bed and to give him an opiate, put a hot water bottle on the side of the head that has been exposed to the wind and keep the boy quiet in bed. Then, in the morning he wants to get up and play, but I keep him in bed three days, and he then gets up and is well. He has regained his resistance and has not been crying all night. I also ordinarily search for the primary focus of infection and endeavor to clear it up.

**Dr. Pattee (closing):** I desire to thank the gentlemen for their discussion. If the paper had aroused more discussion from the general practitioner, for whom it was principally written, the writer would have been even more pleased. I agree with Dr. Bane that fever, under certain conditions, and when regarded in conjunction with other symptoms, is a symptom of some value. In general it has not great clinical value in otitis and its absence misleads physicians frequently. All signs sometimes fail. I have called attention to a few that are only too often misleading.

Dr. Gallaher is correct. Prevention of chronicity is the primary object. We are greatly reducing chronic otitis. By repeatedly reminding physicians, medical students, nurses and the laity of the consequences of neglected otitis, much good is being accomplished.

I agree with Dr. Singer. Acute cases from that origin should be put into a warm bed, given fractional doses of calomel, hot liquid diet and such constitutional treatment as seems indicated.

## TEACHING SIMPLIFIED INFANT FEEDING.\*

F. P. GENGENBACH, M.D., Denver.

Since the milk from the mother of any young animal is specific for that animal, there should usually be no question as to the advisability of giving breast milk to the young infant, but, unfortunately, it is not always obtainable. Hence, only too frequently, the necessity of attempting to raise the infant upon some artificial food. Thus, feeding will always be a problem of the individual infant.

Next to the ever-present problem of conserving the lives of human beings after they have attained their maturity, comes the problem of providing future generations to succeed them. Sex instinct and the universal desire for parenthood are the stimuli which provide the successors to the ever-dying races, but how to bring these successors to maturity has been a problem which has received an ever-increasing amount of attention as civilization has advanced.

Volumes have been written upon the subject, so the members of this society need not fear that the writer will attempt in this short paper to cover in detail even that part of it relating to the feeding of the infant during the first year of life. It did occur to him, however, that some of the important points as brought out in teaching medical students of the present day might be of some service to some of the members whose student days seem perhaps only a hazy recollection, and whose busy lives in general practice have prevented them from following some of the more recent work done in infant feeding.

**Breast Feeding.** In view of the statement made as to the specificity of mother's milk, it would appear unnecessary to urge any of you to keep the baby at the breast until the natural weaning period, which occurs between the ninth and twelfth months. Even when it becomes impossible to provide sufficient breast milk, it should not be necessary to urge you to give what breast milk

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is obtainable as long as possible, using supplementary artificial feedings to supply the deficiency in nourishment.

Nevertheless, there still exists a decided tendency upon the part of many general practitioners to take the infant from the breast for what should be considered insufficient reasons.

It is universally conceded that the infant should, if possible, receive breast milk, preferably from its own mother; otherwise from a wet nurse; further, where the supply of breast milk is insufficient, that it should still be continued, and artificial food in the form of complementary or supplementary feeding be used. Where no breast milk is obtainable, one has no choice but to raise the infant upon artificial foods entirely.

Under what conditions should a mother not nurse her baby?

Briefly, when she has an active tuberculosis, when she has become markedly debilitated from excessive loss of blood, puerperal eclampsia or septicemia, and, finally, where she is so delicate or is such a sufferer from some chronic disease that the advantage to the infant is outweighed by the danger to the life of the mother.

Should a syphilitic mother nurse her baby? Yes, whenever possible, for combined with proper medical treatment it offers the best possible hope of saving the baby.

Should an infant be weaned because its mother's milk is too rich for it? Practically never, for the writer believes that this is usually the case during the early period of nursing. Soon after the baby is born its mother's milk is usually richer than it will ever be later on, and tends to become less rich as the nursing period continues. On the other hand, the infant's digestive organs, which have not been used in utero, are naturally weaker than they will be later on as they develop with use.

For practical purposes the richness of mother's milk may be represented by a straight line beginning at a point at the left and declining to the right, while the infant's digestive powers are represented by a straight line beginning at a low point at the left and ascending to the right. The point where these two lines meet represents the

time when the richness of the milk has decreased and the digestive power of the infant has increased, so that the horizontal line which extends to the right represents the period when the infant is able to thoroughly digest its mother's milk. In some infants this point will represent only a few days or weeks after birth, in others several months.

What measures can be used during this trying period, known as the colic or indigestion period, to maintain the infant at the breast?

Briefly, encourage the mother to eat the less nourishing foods, like fruits and vegetables, and to drink more liquids to help thin the milk. Also have the mother take more exercise if possible, so as to use for herself more of the food she eats, and thus leave less to enrich the milk. Next, curtail the nursing time so the infant will get only the weaker first milk, pumping out the remainder if necessary to prevent caking of the breasts. If these measures prove inadequate, dilute the milk in the infant's stomach by giving plain or cereal water before each nursing.

Next, try increasing the intervals between feeding, for it is a well-known fact that an excess of fat in the food slows down digestion.

Most of us were taught in student days to put the newborn baby on a two-hour feeding schedule with ten nursings in the twenty-four hours. Since then many of us have found the three-hour feeding schedule, with seven nursings in the twenty-four hours, preferable.

Now comes the modern theory of the four-hour feeding schedule with five nursings in the twenty-four hours. This theory has been successfully tried out for some years in Chicago, Cleveland and other pediatric centers, and has proven a wonderful boon to the nursing mother, with its longer intervals between nursings, its fewer nursings, and, last but not least, the opportunity for a good rest and long sleep between the 10 p. m. and 6 a. m. nursings. Since infants are after all only young animals, why cannot they be trained to a four-hour feeding interval as readily as the two-hour interval?

Finally, if this does not bring success, give the infant sufficient artificial digestants to tide it over to the time when the two lines meet.

Should a baby be weaned because the breast milk is too weak?

Usually not, for with proper diet and hygiene for the nursing mother the quality of the milk can usually be materially improved. Where it still proves inadequate because of either quality or quantity, it should be continued and mixed feeding attempted. It has been definitely proven that breast milk, because of its vitamins, growth-producing bodies, and its alexins, immunity bodies, is of inestimable value aside from its nutritive qualities; further, that the breast milk in some way seems to have a protective power over artificial foods so as to make them more digestible when given with them, whereas if given alone the artificial feedings may prove quite indigestible.

In mixed feeding some artificial food may be given immediately after nursing, complementary feeding, or it may be given in place of one or more nursings, and preferably alternating with the nursings, supplementary feeding. The nature of the artificial feeding will be touched upon under that heading.

**Artificial Feeding.** For practical purposes there are only two milks obtainable as substitutes for breast milk—goat's milk and cow's milk.

The advantages of goat's milk are: (1) the freedom of goats from tuberculosis; (2) the greater homogeneity of the fat in goat's milk; and (3) the fact that some infants can tolerate it better than cow's milk. This is seen in infants with an idiosyncrasy against cow's milk, and in some cases of infantile eczema.

The disadvantages of goat's milk are: (1) its greater richness, especially in fat; (2) its cost of production commercially (retails in Denver at fifty cents a quart); and (3) the limited amount obtainable. The third objection alone is sufficient to condemn it as a satisfactory substitute for breast milk, except in the class of cases mentioned. We are therefore left with the necessity of using cow's milk in some form or modification.

If it is true that a quart of cow's milk

contains the same food elements and the same amount of nourishment (calories, or heat units) as a quart of breast milk, why cannot the infant be fed just plain whole cow's milk? The time permitted for the reading of this paper forbids a discussion of the relative percentages and digestibility of the various food elements in the two milks, so suffice it to say that in cow's milk nature provides a specific milk for the calf that is difficult to digest, so as to rapidly develop the digestive powers of the calf and so prepare them for the early weaning period which entails with it the necessity of later digesting such coarse foods as grass and hay.

Empirically it was, therefore, found necessary to modify the cow's milk in some way so as to adapt it to the digestive power of the infant. That this modification is frequently a difficult problem is manifested, first, by the ever-increasing number of proprietary infant foods upon the market, and, second, by the constant endeavors of infant feeders to scientifically investigate the problem and, practically, to find some simple method for the modification of cow's milk.

The short time allowed this paper precludes a discussion of the many methods attempted, and the remaining few minutes permit only the brief presentation of a practical method for the average infant.

What are the salient features of this method? First, boiling the milk; second, a method for determining the amount of each feeding; and, third, a method of calculating the amount of each ingredient in the feeding. Let us very briefly discuss these features in the order named.

**Boiling the Milk:** This is done not only to destroy the pathogenic germs frequently present in cow's milk as delivered to the household, but more especially to render it physiologically more easily digested by the infant.

Scientific investigations upon experimental animals as well as upon infants have definitely proven that when a milk other than that which is natural or specific for it, is given to a young animal, that milk is always better tolerated when it has been first boiled.

The arguments against boiled milk are



certainly outweighed by its advantages. The principal disadvantages are a slight tendency to constipation, the destruction of the vitamins in the milk and a small loss of soluble proteid (lactalbumin). These are overcome by the early use of orange juice, which is rich in vitamins, the temporary use of laxative measures and the replacing of some of the sugar by laxative cereals like oatmeal or by some of the laxative malt sugar preparations.

Cow's milk when given to an infant should therefore first be boiled from three to five minutes in a single boiler, or eight to ten minutes in a double boiler.

**Amount of Feeding:** When on a three-hour feeding schedule most infants will tolerate at least as many ounces at a feeding as they are months old, and usually one ounce more than months. Even a newborn infant will frequently take three ounces at a feeding.

Where a four-hour feeding schedule is used usually two ounces more than months will be tolerated, but in any case more than eight ounces at a feeding is never given. The number of ounces in each feeding multiplied by the number of feedings in twenty-four hours determines the total amount of the daily feeding.

**Amount of the Ingredients:** Hoobler and others have shown that if an infant in its twenty-four-hour feeding is given three-fourths ounce of whole milk for every pound of its body weight, its immediate protein need will be satisfied. However, in order to be on the safe side it is recommended that an infant be given one and one-half ounces of whole milk for every pound of its body weight, especially in view of the fact this amount will also usually take care of its fat need.

Knowing, however, that many infants cannot at the beginning digest cow's milk very well, it is suggested that the feedings at first should contain only one ounce of whole milk for every pound of body weight, and that this amount be later gradually increased to one and one-half ounces.

Huebner and others have shown that the infant ordinarily requires in twenty-four hours an average of one hundred calories

for every kilogram of its body weight, or about forty-five calories per pound. We therefore next calculate the number of calories for the particular infant in hand.

**Application of Feeding Method:** To illustrate, let us take as an example an infant three months old that weighs ten pounds. This infant then requires four hundred and fifty calories in daily feed. On a three-hour feeding schedule it is to receive at least seven times three ounces — twenty-one ounces, and usually seven times four ounces — twenty-eight ounces. Of this amount, ten ounces are to be in the form of whole milk, and the other eighteen ounces in plain or cereal water. If put on a four-hour feeding schedule it will tolerate four ounces and usually five ounces at a feeding, and at the beginning will probably demand six feedings in the twenty-four hours. Thus six times five ounces—thirty ounces, of which ten ounces will be whole milk and twenty ounces diluent.

These ten ounces of whole milk (twenty to twenty-one calories to the ounce) represent about two hundred of the four hundred and fifty calories required. The remainder are furnished by the carbohydrate added, either sugar alone, or sugar and starch, the latter in the form of a cereal dilution.

When tolerated, cereal dilutions are preferable, and the tolerance for starch is usually readily developed by the infant even in the earlier months of life. Barley water is ordinarily used for this purpose, using three level tablespoonfuls of barley flour or two rounding tablespoonfuls of pearl barley to a quart of water. Cook in a single boiler for twenty minutes or in a double boiler for one hour. Replace any of the water evaporated by the boiling and season to taste with salt. Made thus each ounce of the barley water represents about three calories. Thus the eighteen or twenty ounces to be used represent about sixty calories.

This still leaves about one hundred and ninety calories to be provided in the form of sugar, and as one ounce of table sugar, which is the kind we ordinarily use, represents one hundred and twenty calories, we must add one and one-half ounces of sugar to the day's feeding. While the tolerance

for sugar is usually very good, it is sometimes safer to underfeed the infant at the outset and only use one ounce of sugar, depending on the gradual increase in the amount of milk to be used to offset this deficiency.

Thus in the example used the additional five ounces of whole milk to be added (ten times one and one-half ounces—fifteen ounces) furnishes one hundred calories, more than enough to offset the sixty calories in the one-half ounce of sugar, and the fifteen calories in the five ounces less of barley water used. Ordinarily the milk may be increased at the rate of one ounce every other day.

One other suggestion applicable to the feeding of under-nourished or atrophic infants: We now appreciate the fact that in order to make up the deficiency in weight, these infants, as rapidly as they can tolerate it, should be given each day the number of calories required by an infant of average weight at the same age.

Practically it will usually be found that these atrophic infants will soon tolerate fifty, sixty or even more calories per pound of body weight. This additional nourishment is obtained by gradually increasing the milk up to two ounces for every pound, but never over thirty-two ounces of whole milk, and any further deficiency being provided by increasing the amount of carbohydrate used, or the giving of one or more cereal feedings. Kerley, Merritt and others have shown that the carbohydrate content of the daily feeding may often be increased to ten or twelve percent.

The writer does not claim that the method suggested will prove unexceptionally effective in the feeding of all infants, but as it has proven a success in our feeding clinics at the medical school, it seemed worth while to present it to the members of this society for their consideration.

For the benefit of those members who are in doubt as to how to start a very young infant on a milk modification, the writer refers to the schedule of feeding for the first four weeks of life, given by Dr. J. H. Hess in his most excellent work on the Principles and Practice of Infant Feeding.

## DISCUSSION.

**F. C. Kennelley, Denver:** I wish to highly endorse the four-hour schedule. It is a schedule we use in our infant welfare work whenever possible. I find that the usual gas, colic, etc., lessen and disappear; the baby gains normally in weight, six to ten ounces a week. All mothers who accept this four-hour schedule are very enthusiastic and wish they had tried it earlier. We have babies in the first month of life on four-hour schedule, and after a short period they usually gain normally. In the use of sugars, I wish you to remember that the proprietary foods, as Mellin's, Dextri-maltose and the different malted milks, are, irrespective of name, mostly all dextri-maltose and vary very little in percentages. If you have trouble with one of these malt foods it will do no good to change to one of a different name. The usual trouble is that it is given too strong. In our infant welfare work we use table sugar almost exclusively, for two reasons—everybody has it at home and it is the least expensive. The fault I find with table sugar is that it is constipating. When table sugar is too constipating I usually use one of the dextri-maltose foods. The most common mistake is to make the first formula much too strong. I wish you would remember to give the first food at least in half dilutions, and wait for the stomach and intestines to become tolerant before the food is increased in strength to the required needs of the child. To the help we have at the infant welfare stations and in the teaching we give at the dispensary there are a few simple rules given: first, to use in twenty-four hours one and a half ounces of whole milk per pound of body weight, adding enough water to make the total ounces of food needed for twenty-four hours; add enough sugar to make the required calories, usually from one to one and a half ounces by weight; add lime water, one to two ounces in the twenty-four-hour formula, or sodium citrate one-half to one and one-half grains to the ounce of whole milk used. This makes the curd more easily digestible.

**C. D. Spivak, Denver:** It was, indeed, a delight to hear Dr. Gengenbach's paper and the emphasis he laid on the subject of the intervals of feeding. I have been interested in this subject as regards adults—I haven't had much experience with children. For many years I did not treat any children, but I had a clinic of my own. I had three children some twenty-five years ago and they came in rapid succession, and I know that during the first years of their lives I must have been very wicked, indeed, as I didn't have much of peace. I was up every night, and so was the other and better half. Twenty-five years later I now have again a little clinic in my house; I have two grandchildren, and it happens that one of the mothers was a nurse; the other had a good doctor and a good nurse. From the very day the children were born they were never fed more than four or five times a day. There is now peace in the family. The nights are glorious—not a single sleepless one. Now, I want to say that I believe adults should follow the same wise practice. If a child, newly born, can live on four or five meals a day, surely a healthy young man should never take more than three meals, and an older man should take only two meals a day. Anyone who has some gastric disturbance, after he is thirty-five or forty years old, if he will just leave out one meal of the three, even at the price of a few headaches and a gnawing sensation in the stomach, will be well repaid by the return of a normal digestion.



**J. W. Amesse, Denver:** Dr. Gengenbach has given us a very clear idea of the prevailing opinion of those interested in the feeding of children at the present time. In regard to the use of whole milk, with simple mixtures, and the use of malt sugar, I agree with him heartily. The time allowed for his paper did not permit him to speak, as I am sure he would if he had the opportunity, of the importance of securing a pure milk supply. Now, if we are going to give a baby or a delicate child milk, we should at least give it wholesome and pure milk, and it should be made the function of this society, and every component society, to insist that these children get as pure milk as can possibly be obtained. Colorado is making a bid for tourists; we invite these people to come with their families, and we should obligate ourselves to protect their food supply.

**G. M. Blickensderfer, Denver:** I am sure we have all enjoyed the paper by Dr. Gengenbach, and we all appreciate its value. I have nothing especially to add to it, except to emphasize one point which Dr. Kennelley brought out in his discussion as to the value of the sugars. The point I wish to emphasize is the harm which may result where a baby is not doing well in the too frequent changing of the food in the hope of finding something better in one or the other proprietary foods than in the one you happen to be using. I think there is no special choice in them; they all contain about the same ingredients, and in about the same proportions. Personally, I believe that the malt sugars are to be preferred to the cane sugars, and it is the consensus of opinion that the malt sugars are more readily assimilated by the infant than the cane sugar, but that seems to be a matter upon which there is nevertheless some difference of opinion, and some who are using cane sugars are getting equally good results with the majority who are using malt sugars. The criterion on which to base the success of the feeding is the passage of good, healthy-looking stools and the steady increase in weight of the baby.

**H. Tremaine, Denver:** If a young man, young in the service, who is only a general practitioner can take issue with a man like Dr. Gengenbach, I should like to state in regard to the boiled milk that it is not because the boiled milk is better, but it is because here in Denver we have not the proper milk, and it is simply a crutch; it is a crutch because we cannot get a suitable milk supply, and I feel that for that to go by without a protest will be unbecoming to some of us at least. It seems to me if we will insist upon a pure unpasteurized milk supply we can get it, and I believe in the long run we shall get better results. At this time it does not seem practicable in Denver, but perhaps if we protest long enough we shall get what we want.

**G. H. Cattermole, Boulder:** I wish to endorse Dr. Gengenbach's method of feeding. Children, I believe, are fed too much and too often, and the fat breast-baby is not as comfortable nor as well as the thin artificially fed baby oftentimes, and if it is necessary to feed them artificially, I know of no better method than his. I believe that many of the fat breast-fed babies are much better on the long intervals of feeding.

**Elsie S. Pratt, Denver:** I cannot let what Dr. Tremaine has said go without protest, for this reason: While I am very much in favor of all that can be said or done in the line of obtaining pure milk, still I feel strongly that, in my own hands at least, the boiling of the milk has the additional advantage not only of freeing it of disease germs, but of making it more digestible, and I think it can be proven again and again that the

boiled milk is very much more easily digested by the delicate infant than the unboiled milk. I think there is a point right there, as those of you know who have tried using the dried milk, which is prepared by passing pure milk over steel rollers in such a way that it is dried instantaneously. You who have tried that kind of milk and have had a child who simply could not take fresh milk have found it could take this milk when prepared in this way, dried. There are times when the child will not take boiled milk and will take this dried milk. I really did not intend to say very much about dried milk, but I wish very much that those of you who are interested in this subject would try using it, because it has the advantage that it can be modified exactly as fresh milk can be modified. Milk that has once been dried and put in powdered form is more digestible and is capable of modification. Some time I hope to be able to present this subject of dried milk more in detail.

**Dr. Gengenbach (closing):** Mr. President, I think my first introduction to the long feeding intervals occurred about twelve years ago, when I was studying in Professor Huebner's clinic in Berlin. A mother brought in a beautiful specimen of a baby for some skin eruption and the professor asked her how often she fed the baby and she said four times a day. I think even the professor was surprised; I know I was. She said, "Yes, I feed him in the morning and then at noon and then the latter part of the afternoon and then before he goes to bed." There is no question but that there is a decided advantage in the long interval feeding.

The question of pure milk brought up by Dr. Amesse is a very important problem; it was discussed in our county society not long ago. My belief in regard to the boiling of milk is not to offset the desire for pure milk—we can never get milk that is too clean, but we must recognize the danger of not boiling the milk. This is especially true in traveling. I insist that all my patients who travel with their babies shall do one of two things—they shall either boil all their milk all the time while they are away, or else use some other preparation, like Dr. Pratt has suggested—dried milk, which is a very convenient form in which to give the milk. You can carry it in a can. It is really a dried skimmed milk, because when diluted down to the proper proportions as suggested it really has only 1.2 percent fat. However, for temporary use, it is very effective, and it is easy to instruct the mother in its use, because a level tablespoonful of dried milk represents one ounce of the milk she was giving when she had the baby at home. When she is traveling she simply measures out the number of level tablespoonfuls of dried milk required in each bottle and then modifies it with the sugar and water.

The point brought out about changing foods I think is important. I think too many of the profession have been hoodwinked by the proprietary infant food manufacturers. You must not lose sight of the fact that it is the milk in the food that is the principal thing to be considered, and that these different foods simply are different forms of the milk. The point brought out by Dr. Tremaine I think is all right, where the baby can tolerate fresh milk, but I insist that when you are putting the baby on artificial food the proper thing to do is to boil the milk. If you have any reason to believe that the baby would do better on fresh milk later on, you can try it out, but I want to warn you not to do it suddenly. If you have got a baby that is on a modification of boiled milk, just leave out some of the boiled milk

and add a little fresh milk, and if that does not disturb the baby gradually increase the amount of fresh milk.

**Dr. Gilbert:** I should like to ask Dr. Gengenbach how long you should boil the milk.

**Dr. Gengenbach:** Three to five minutes in a single boiler, or eight to ten minutes in a double boiler. The milk does not actually boil in the double boiler; you count from the time the water in the outer vessel boils.

## THE RELATION OF HERNIA TO MILITARY SERVICE.\*

W. W. GRANT, M. D., Denver.

In the beginning of the late war, neither the military arm, the general equipment, nor the medical department of the government was prepared for the varied and responsible duties that suddenly awakened the latent forces of the civilized world. Old systems were out of date. In a world contest, the character and essential importance of which were never before known, nor perhaps thought possible, its momentous exigencies and bloody ordeal appealed to the genius and the resources of all that was best in the spirit, the manhood and the character of our profession as well as of the government. Humanity and public duty never appealed in vain to the medical profession, and—to its honor—no other vocation, with one possible exception, responded in equal degree to the requirements of the hour. The old army rules and regulations had served well, doubtless, the purposes of a day that is past; "regulations" were changed so frequently and rapidly that the manual of 1914 could hardly be recognized in 1918.

As surgeon and chief of the surgical staff in one of the six important recruiting depots of the country, it was my duty to observe and to participate in the hurried activities and forced changes in conditions that were, to say the least, chaotic and trying to the free-born spirit of the American doctors, whose lives had been spent in the restless competitive arena of a scientific age. The qualifications of the enlisted man were determined chiefly by this class of physicians from civil life who were commissioned to active duty for the duration of the war. Yet, in the early period of the war, men

with any form of hernia, regardless of its degree of disability, were promptly rejected for any branch of the service. The necessity for rapid recruiting and equipment of an army of two to four million men was urgent and manifest.

I was so impressed that thousands of able-bodied men, most of them willing and anxious to serve, were being summarily rejected for reasons I believed insufficient that I made a direct request to the surgeon general for permission to operate on all safely operable conditions, such as hernia, hemorrhoids, hammer-toe, etc., with the consent of the applicant (this consent was necessary when the applicant was suffering from disqualifying conditions). I received a prompt reply signed by the surgeon general, the secretary of war, and the adjutant general granting the request. I note a recent statement that seventeen percent of the rejections in this war were on account of hernia and flatfoot. The latter was common, but many cases were not pathological, and finally chiefly those with broken arches were rejected, the regulations being modified to meet the conditions in the absence of other disqualifying defects. As might be expected, some men took advantage of the disqualifying conditions in order to evade army service and refused consent for operation.

In a few months, interrupted by the pressure of recruiting, of epidemics and overcrowding of hospitals and tents, one hundred and ten men were operated on for hernia—most of the hernias being oblique inguinal and having a distinct sac. Some of the cases were of exceptional interest. I may mention the six cases of unilateral cryptorchids with hernia on same side; all were operated on for both conditions at once. In one case the testis was intra-abdominal and no persistent effort was made to deliver it; otherwise the case was treated as an ordinary hernia. In one case there was an undeveloped testis in the canal with an enormous omental scrotal hernia. The man would not consent to the removal of the testis. The omental mass was ligated and excised and the testis treated by the Bevan method—dividing all tissues of cremaster and cord except the vas and artery. There

\*Read at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1919.



being no distinct sac but a bulging of the peritoneum, the case was treated as a large direct hernia in other respects. I saw this man two or three months later on his way to the front, and the condition was most excellent in spite of its difficulties. The testis was in a very good position below the external ring. I was able in the other four cases to fix the testis in a very satisfactory pocket without so much mutilation of the cord. A circular stitch, not tightened sufficiently to unduly constrict the tissues, was applied just above the testicle and below the external ring. The result was satisfactory in each of the six cases. In no case was the organ removed.

There were three cases of femoral hernia. In my experience this is not common in the male. The first was sent to the recruiting depot for operation and enlistment by Major Cuthbert Powell, who was then attached to the recruiting office in Denver. This was a small and recent hernia. In the other two cases the tumors were as large as a walnut, with well defined sacs and of long duration; one from early boyhood—in this case the content of the sac was adherent omentum. In the others of this class the contents were reduced without opening the sac; in both the sac was pouched by carrying it through the ring and external fascia just above Poupart's ligament, where it was ligated, excised and fixed by a chromic stitch. The ring was further occluded by a circular stitch of the divided superficial fascia and tissues to Poupart's ligament, with one silk stitch through Poupart's and Gimbernat's ligaments. None of the cases had suffered from any symptoms of strangulation. The incision, of about three inches, extended from the pubic spine, curved slightly downward over the mass and back to Poupart's ligament, and the skin flap was turned upward to better expose the tumor and the crural ring.

In one case of scrotal hernia the contents were the entire cecum and appendix. In such cases there is always a long and lax mesentery, whether a sliding hernia with deficient peritoneum posteriorly or direct through internal and external rings, as in this case. The appendix was removed, the

cecum replaced and the canal closed, as in old direct hernias with no well defined sac.

One of the most difficult cases was a large ventral hernia, the result of two operations for a gangrenous or suppurative appendix, followed by gauze drainage. Evidently there was no approximation of the fascia in the operations. The scars, five or six inches long and at least three inches wide, made a bulging hernia difficult to treat successfully. The fascia was widely separated and the transverse colon extensively adherent to the cicatricial tissue. The cicatrix was removed by dissection and by undercutting the fascia was brought together. With a somewhat tedious convalescence a good result was obtained, and with the prudent use of an abdominal belt the recruit joined his company in a promising condition.

The operator is unable to follow up the final result in these operations, but I feel quite convinced that in those cases, especially with a distinct sac (this constituted the great majority of the cases) which were treated by careful dissection and pouching of the sac through the internal ring and external oblique fascia and fixation by ligature and stitch as performed by Kocher and partially in practice by Halsted, and the application of two or three non-absorbable sutures in closing the posterior wall of the canal by the Bassini technic, there will be few recurrences. Sixty percent of the recurrences after hernia operations occur within six months and eighty percent within one year.

I do not think the detailed dissection and disposition of the constituents of the cord and cremaster in the male, as described by Torek in the September Annals of Surgery, at all necessary. It is interesting to note that he uses in the repair of the posterior wall of the canal linen or silk sutures which Kocher used invariably, while Coley uses only chromic gut or kangaroo tendon.

Most of the hernia cases presented for examination were in young laboring men, farmers, mechanics, etc.; most of them chronic and not wearing truss supports. They complained usually of no pain or other discomfort and the inconveniences did not

seem marked. Strangulation in chronic hernia is not common with or without the use of a support. The complete hernia is, as a rule, the result of gradual intraabdominal pressure which produces a gradual dilatation of the rings and canal by intestine and omentum, or both. The parts gradually adapt themselves to this condition. It is not devoid of danger by any means, and is most satisfactorily treated by operation. If men can engage in all the varied pursuits of civil life, often without a truss, with reasonable safety, there seems no satisfactory reason for excluding them from military service, with the possible exception of trench digging or the more strenuous requirements of certain phases or departments of army life. In the recent war, hernia finally ceased to be regarded as a total disqualification, and all except extreme cases were accepted, for limited service at least, for the average work of the soldier with hernia is not attended with unusual danger from that cause. Furthermore, when once accepted, the government has the power to more effectually safeguard the soldier's health than he himself would in civil life.

The regulations of the future will doubtless take cognizance of the facts and necessities taught by great emergencies. It should be remembered, too, that the iron-clad rules and regulations of the past were not based entirely on the fear of great or imminent danger from the soldier's condition, but were intended largely as a measure of protection to the government against pension frauds and postbellum claims of an unjust character. If disastrous wars are to continue, correctible disabilities will not stand as an insuperable obstacle to public duty.

325 Mack Building.

#### DISCUSSION.

**W. A. Jayne, Denver:** Dr. Grant has covered this subject of hernia in the military service so thoroughly from his own experience that it leaves nothing for me to mention, except possibly a few matters checked up under my observation. The problem as it was presented to me in the service was simply to increase the man power. The men who came under my observation had been accepted as recruits and were sent to various forts in Boston harbor for training in the heavy coast artillery. The work was exceedingly strenuous and subjected men to great strain. Many men who had hernia and had gotten along without

difficulty in civil life found themselves unable to stand this drill. They complained, fell out, and many of them were assigned to light duties, as desk work in the quartermaster's department. This crippled some of the companies very considerably because there were a number of hernias. As I took charge of the hospital I suggested to the commanding officer that I should undertake some of these operations for hernia. Just as soon as it was proven that these men could be operated upon successfully and with little danger, many of the men who had been considered as disabled came forward through their own initiative and that of their commanding officers and wanted operation at once so that they might be able to go across the seas with their organization. There were a very large number of volunteers with hernias of all characters, mostly moderate, some incipient and a few large hernias of long standing. The operations were all done by the usual methods, and I don't know that there is anything particular to remark upon that except the interest that may be attached to the use of kangaroo tendon. During my early service the operations came so fast that we exhausted the supply of catgut, and it was almost impossible to get sufficient catgut; in fact, it had to be used very sparingly for a long time. In looking around in the hospital storeroom I found a very large amount of kangaroo tendon; it seemed to me the amount was sufficient for several regiments for a good many years under peace conditions. How such a large collection was ever gathered there I don't know, but, finding this kangaroo tendon, I used it instead of catgut. I found it rather difficult to use as compared with chronic or plain gut, as it was unequal in size and in strength. It was not pliable and difficult to hold in knots, and when the knots were formed they were large and bulky and proved to be irritating. In a large number of cases after operation there was a tendency towards the formation of serum under the skin and it became necessary to be watchful and to make a small opening in the skin and allow this serum to escape at once as it collected. After some delay and considerable discharge of serum, the wounds healed nicely without suppuration. The immediate results were good, without any complications whatever except in one case, in which phlebitis developed and rendered the man unable to resume his duties for two months or two months and a half. Very many of the men expressed great delight that their hernias were cured without expense to them, and they were able to go overseas. The general spirit was one of satisfaction over being able, as others, to do their full duty in the army. There was one exception, however, and this was a man who, on the first day he came to camp, complained of a large hernia and his inability to walk and drill. He was ordered to the hospital and it was found he had a large hernia, which he said had existed for a number of years. It was a great curiosity, and doctors from all parts of the country roundabout visited him to see this hernia, and all advised that it could not be operated upon with safety. I disagreed with this statement of the case and advised operation. As the patient declined, a consultation was called, according to regulations, and three surgeons agreed that he should be operated upon. He again declined and was sent to the guard house and threatened with court-martial. He finally came to the hospital voluntarily and consented to be operated upon. The operation was a simple one and the results most excellent. An interesting part of his recovery was shown by his home paper, showing that he had written



home and boasted very much of his successful service in the army, while everybody else thought he had a very large yellow streak down his back. In fact, as he did have this yellow streak, the boys endeavored to wash it out. He was sent overseas and served six months, but recently I received a letter intimating that though the hernia was thoroughly cured he would rather have given \$10,000 than be operated upon because he would have then drawn a very large pension.

**J. Crum Epler, Pueblo:** I have listened with a great deal of pleasure to Dr. Grant's paper and the mention of the ingenious methods which he has used in dealing with irregular hernias in soldiers. It happened to be my fortune to become closely associated with some of this work prior to going overseas, and I feel that the cases are treated in the army identically with those in private life. The irregular or complicated cases are met at the time of operation, to the end that the results are the best for the individual; in the army, always with the idea of making a man fit for general military service.

If I did not misunderstand, Dr. Grant said that if a man in civil life could go along with a hernia, there was no reason why this man could not be operated and do general military service. I agree that he may be able to do limited military service with any type of operation; he may be able to do general military service with operation. But there are two main reasons why the soldier cannot always do general military service, even after the best and most careful operation. There is a very great difference between the pursuits of civil life, particularly when the man is attempting to follow those pursuits with the hernia, and attempting to follow those pursuits with the hernia or with a recent operation in the army. In the first place, he will protect himself, because he knows in his mind he has a hernia, and because he has the opportunity of protecting himself. In the army, on the other hand, he does what he is told, as he is told, and when he is told, regardless of whether he has the hernia or whether he has been operated upon. Such work as bayonet drill, or trench digging, certainly is not conducive to recovery of a recently operated hernia. About the usual percent of hernias fail in the army as in civil life, not due to any faulty operation, because those who were operated were practically all young; but two things were at fault: first, in one discussion of this paper mention was made in regard to the type of the ligature. It is not believed as a general proposition that the linen ligature is a proper one. It is believed that the chromic catgut is the proper type of ligature to use. Next, approximation, and not least is the tying of the knots. A knot of chromic gut properly tied will be absorbed in proper length of time. Knots which are not properly tied may fall out and allow the tissues to separate, causing the canal to become opened before it adheres, and knots which are doubly tied, or triply tied, as has been done by very careful surgeons—and I have seen it in the army—may cause an infection or even slough. That is one. Secondly, is putting the man to work too soon, and those of you who are thoroughly acquainted with the army life know what will happen when the patient is turned out of the hospital prior to the time he should go to work. The surgeon general said that a herniotomy should have six weeks' rest prior to doing work. Many hospitals, in an effort to make a hospital record, turned hernia cases out of the hospital in three weeks and sent them back to their organizations, and the first sergeant did not take any cognizance of the fact that a man should have

rested three weeks more. In Camp Custer it became necessary that something should be done and a general order came out by which all herniotomies were sent to the development battalion for three weeks prior to the time they were sent back to their organization.

**Dr. Grant (closing):** I haven't anything more to say. The only ligature that I found any trouble with as to infection was kangaroo tendon. It was assumed that the kangaroo was certainly reliable. I had used it in a few cases and had some superficial infections, and, subjected to bacteriological examination, it was proven nonsterile and was discarded. In all these cases I used the linen interrupted stitch to the posterior wall, making the upper one very close to the internal ring, practically obliterating the ring and making point pressure three-fourths inch above the internal ring. The Bassini method of closing the posterior wall I have followed in all cases, and used usually three nonabsorbable linen or silk stitches. I believe what Dr. Kocher says about that is true. If the sac is disposed of in this way and a few nonabsorbable stitches are used, you will not have many recurrences. In femoral hernia I dispose of the sac by the same method as in oblique inguinal hernia, and with very satisfactory results. The nonabsorbable stitch I always resterilized, and I insist that you can sterilize silk and linen to a degree of perfection that you cannot catgut, and, after all, silk and linen are better, more perfectly reliable sutures, so far as infection is concerned, than any form of gut I have ever used.

## News Notes

Dr. William Wylie Jones, former captain in the regular army, received his discharge June 1st and is now in New York doing postgraduate study. He expects to return to Denver some time in August and limit his practice to pediatrics.

Dr. H. G. Wetherill of Denver returned from California in the latter part of June and will spend the summer in Colorado.

Dr. C. B. Van Zant of Denver is expected to return from Alaska and other parts about July 29th.

The May issue of Colorado Medicine being somewhat short, the librarian will appreciate receiving copies from those who do not care to keep their files intact.

Dr. Fred H. Carpenter of Denver was married June 13th to Miss May Viola Morcom of Denver.

Dr. B. M. Steinberg has announced the opening of offices at 404 Majestic building, Denver, practice limited to diseases of the skin and syphilis.

Dr. Thomas A. McIntyre, formerly of Cripple Creek, has announced the opening of offices in Colorado Springs for the general practice of medicine.

Another addition to the list of presidents of national organizations must be made. Dr. C. E. Edson of Denver is the newly elected president of the American Climatological and Clinical Association. This brings the number to five. A special clerk for monthly revision of this list is contemplated.

Dr. Walter K. Reed of Boulder was married in Denver June 16th to Miss Kate Chase, a daughter of the late Dr. John Chase of Denver.

The Denver school board's right to enforce compulsory vaccination of pupils in the public schools will remain undetermined until August as the result of Judge C. J. Morley's action in taking the



matter under advisement after a hearing June 29th.

Dr. C. W. Poley of Boulder has tendered his resignation as director of public health of that city.

### Blindness in China.

Bulletin No. 1 of the Special Committee on Work for the Blind in China estimates the number of blind in that country at one million. The bulletin urges the necessity for preventive work. A vigorous campaign will be conducted as to the causes of blindness, treatment of diseases of the eye and the necessity for cleanliness.

The Junior Red Cross has likewise perfected plans to cooperate with the Council of Public Health in a campaign to save thousands of Chinese children from a life of darkness.—National Committee for the Prevention of Blindness, Inc., News Letter.

### Vienna's Plight Described by Dr. Lorenz.

In a recent interview with an American Red Cross representative at Vienna, Dr. Adolph Lorenz said:

"If you wish to learn the condition of the people of a place, don't visit the theaters and restaurants alone. Go to the public dispensaries where patients go for treatment or to beg admission to the hospitals.

"The municipal hospital of Vienna, an institution well known to American medical students, has enabled me to appreciate the difference between the general condition of the children and parents before the war with their present condition, after five years of undernourishment and hunger.

"The war has impoverished and made hopelessly destitute especially the middle class, which lived decently before the war. We of the hospital know people of this class very well. Shyly and vainly they try to conceal their distress under threadbare, sometimes ragged clothes.

"Cases of abject pauperism have become a common feature of our work. Formerly I used to emphasize to my students the fact that a general orthopedic diagnosis can often be made from a certain distance. The face of a healthy child forms a striking contrast beside the pale faces of those about him. You see at once that these pale faces are due to congenital deformity, and maybe to a paralysis which has nothing to do with constitutional conditions.

"Today these striking differences between children afflicted with congenital deformities and those suffering from rickets or tuberculous diseases of the bones and joints exist no longer. All the children you see are equally pale, haggard and worn out. Their faces are those of old people. Their mouths have forgotten what it is to smile. Even an attempt to smile dies at the outset, as if the strain were too much. The eyes look sadly and wearily out of their hollow, sunken orbits. Their skin is flabby, squamous and has lost its natural succulency. Their flesh has shrunk. Their color has faded. Their bones are softened.

"All these distressing conditions have resulted from a prolonged lack of proper food. We used to speak of 'hunger bones' which bend and break without a crack. Often the children's legs look more like corkscrews than anything else. Their bones have become unfit to bear the burden of their bodies. When forced to bear up this weight they very frequently snap like green willow sticks.

"With us there has never been a time when rickets and tuberculosis were rare among the chil-

aren. But at the present time cases of this class outnumber all others. The physicians are unable to cope with the increasing numbers of infant patients. Many of the physicians have succumbed to overwork.

"Terrifying as is the daily toll of victims in tuberculous cases, the fate of the unfortunate youths of both sexes is even more so. These drag themselves along, crying out for help that nobody can give them, and this just because they are starving.

"The mere sight of these heaped-up miseries has at times overwhelmed me, and I would run off in despair, only to return soon to the work of at least lessening the physical agonies of the sufferers. How could I venture to perform even necessary operations on these wretched children and half-grown youths? The slightest bloodshed would certainly kill them! Not even gymnastic treatment can be advised for children suffering from deviations of the spine. How can they perform muscular exercises when they are scarcely able to keep themselves on their weak legs?

"Under circumstances like this I began to hate my work. But happily an event occurred which brought about a change, and I again learned to love the work, because it then seemed less hopeless. It wasn't by inventing a new method of operation on the emaciated bodies of the wretched little patients that I took fresh spirit, but by having to perform operations with a knife bigger than any I had ever used before.

"I wondered at my brutality, a quality never ascribed to me by those who know me. I cut and cut until my hands ached and became callous. Yet, not a drop of blood flowed from the wounds. Neither anaesthetics nor bandages were resorted to. Nor were painstaking aseptic measures necessary. Instead of attending to the terrible wounds my knife inflicted, I went on severing and cutting until nothing was left of the parts operated on. But even these sustained exertions could not quench my 'blood thirst.' On I went until the knife dropped from my nerveless hand, and the next day I delighted afresh in the same butchery.

"Indeed, during the last two weeks I have been a butcher, and never in my life had I thought more highly of my work. For the present, I place butchery higher than my medical art!

"Such a change was brought about by the arrival in Vienna of a carload of American Red Cross bacon and condensed milk. A sixth part of this treasure I was called upon to dispose of in my dispensary, and I can assure everybody that butchery on American Red Cross sides of bacon is a wonderful art when the butcher sees the outstretched hands of the poor children, many of whom have never tasted fat in their lives.

"Sent to you by Miss America! I sometimes say to the children as I distribute the slices of bacon. 'I shall thank her in your name.' And I derived a pleasure from these operations I had never experienced before.

"But our larder has nearly become empty. It has to be replenished. Though an old man, I want to change my profession and for the rest of my life be a butcher, working on American Red Cross bacon and distributing condensed milk among the starving children of Vienna.

"I ask American fathers and mothers to help me in this conversion. My butchery is surgery on a higher scale."—American Red Cross News Service.



## Medical Societies

### EL PASO COUNTY.

The regular monthly meeting of the **El Paso County Medical Society** was held in the ballroom of the Acacia Hotel, Thursday, June 17th, at 8 p. m. Thirty-seven members and seven visitors were present.

The program for the evening was a symposium on Diseases of Children:

1. Birth Control and Legal Rights of the Unborn.....E. P. Hufferd
2. Diarrheas of Children.....Dr. E. L. Timmons
3. Infant Feeding and Milk Modifications.....Dr. Woodward
4. Respiratory Diseases of Children.....Dr. J. F. McConnell

The papers were discussed by Drs. Boyd, Brady, Gillette, Madden and McConnell.

Dr. Kinsley of Denver, Dr. Woodbridge of Pueblo and Dr. Heller of Pueblo were visitors at the meeting and took part in the discussions.

Dr. Crouch presented a case of multiple fibromata, several hundred, in a patient with tuberculosis. They are probably congenital. Section shows nonmalignancy. The patient has had them as long as he can remember.

Mr. Maurice of the Manitou Springs Bath Company gave a talk to the doctors on the advantages of the medicinal waters of Manitou and of the financial advantages of them to this community. He urged the doctors to cooperate with this company. The society voted to renew its interest in the value of the Manitou mineral waters as medicinal agents.

In 1916 the following were elected as officers of the Manitou Mineral Water Commission: Dr. Mayhew, president; Dr. Gillett, vice president; Dr. Magruder, secretary, and Dr. Bortree, treasurer. These men are to continue their investigations and report at the next meeting.

Dr. Hartwell reports that the Child Welfare Committee intends making an examination of the children in El Paso County and wants men to assist him in this work. Drs. Mayhew, Conway, Madden and Gillett volunteered.

C. E. RICHMOND, Secretary.

## Book Reviews

**Medical Clinics of North America.** Volume III, No. 6 (Chicago Number, May, 1920). By Chicago Internists. Octavo of 286 pages with 18 illustrations and complete index to Volume III. W. B. Saunders Company, Philadelphia and London, 1920. Issued serially, one volume every other month. Paper, \$12.00; cloth, \$16.00, net. Consisting of six numbers per clinic year.

This number is entirely devoted to short contributions by twenty-two clinicians from the Mayo Clinic and the Mayo Foundation for Medical Education and Research, University of Minnesota. A wide variety of cases are presented in an up-to-date manner. Then, again, laboratory subjects of interest to the practitioner are described.

Dr. W. H. Benedict reports a case of retinitis circinata associated with tuberculosis. This is followed by an interesting clinic by Dr. H. W. Woltman on facial paralysis. Dr. E. C. Kendall describes the chemical and physiological nature of the active constituents of the thyroid. He states that thyroxin, which is the active constituent

of the normal gland, will relieve the symptoms of thyroid deficiency in a manner similar to the administration of dessicated thyroid. The value of the basal metabolic rate in the treatment of diseases of the thyroid is described by Dr. W. M. Boothby, and the preoperative treatment of hyperthyroidism is considered briefly by Dr. F. A. Willius. Two clinics of interest on mediastinal affections are presented by Dr. W. S. Lemon. A valuable clinic by Dr. G. B. Eusterman on syphilis of the stomach deserves commendation. He states that the diagnosis is often made by inference or by bearing the diagnosis of gastric syphilis in mind. Interesting cases of pancreatic carcinoma are presented by Dr. R. D. Mussey, and two cases of retroperitoneal tumor by Dr. J. A. H. Magoun. Radium therapy of carcinoma of the uterus and prostate is dealt with by Drs. Leda J. Stacy and H. C. Bumpus. Renal absorption, with particular reference to pyelographic mediums, is fully discussed by Dr. E. H. Weld. Dr. W. W. Bissel reports a case of primary portal thrombosis and Dr. H. E. Marsh fifteen cases of erythema. Dr. A. Archibald's contribution deals with aplastic anemia. Dr. H. Z. Giffin presents an interesting case of tuberculosis of the spleen and Dr. T. L. Szlapka presents cases of pernicious anemia alive three years after splenectomy. Blood transfusion is fully discussed by Drs. Winifred Ashby and A. H. Sanford. The concluding clinic by Dr. J. H. Stokes deals with a series of interesting subjects.  
J. L. M.

**The Surgical Clinics of Chicago.** Volume IV, No. I (February, 1920). Octavo of 231 pages, 83 illustrations. Philadelphia and London: W. B. Saunders Company, 1920. Published Bi-Monthly. Price, per year: Paper, \$12.00; cloth, \$16.00.

The February number maintains the usual high standard of the clinics. Twenty-nine cases presented by sixteen different surgeons include a variety of subjects. A perusal of the table of contents will show the average reader at least a few cases in which he would be glad to know the latest Chicago treatment.

Bevan's treatment of carcinoma of the large bowel with intestinal obstruction, giving his procedure leading to resection, appears to be a method of great value in this serious condition.

Straus has had remarkable results with his operation for congenital pyloric stenosis and has two cases demonstrating his methods of diagnosis and treatment.

Eisendrath presents what he considers the ideal operation for femoral hernia.

Bevan's case of imperforate anus, Speed's treatment of rectal prolapse and Gatewood's method of dilating a stricture of the esophagus all contain points of particular value. G. B. P., Jr.

**The Surgical Clinics of Chicago.** Volume IV, No. II (April, 1920). Octavo, illustrated. Philadelphia and London: W. B. Saunders Company, 1920. Published Bi-Monthly. Price, per year: Paper, \$12.00; cloth, \$16.00.

A clinic of twenty-five operative cases presented by the leading surgeons of a medical center of Chicago's magnitude is necessarily worth a glance by any practicing surgeon. It is impossible to pick out from such a wide assortment of subjects as are presented in this number those of especial interest to everyone.

Ochsner demonstrates clearly and in detail his method of prostatectomy.

Davis, in the presentation of seven cases of cervical rib, gives an excellent brief resumé of the



whole subject from the standpoint of pathology, diagnosis and treatment.

Imperforate anus and carcinoma of the large bowel, both cases of Bevan's, are of interest as compared with two cases presented by him in the February clinic, both demanding operation different from that described in the previous number.

Straus reviews the subject of subdiaphragmatic abscess, and discusses the diagnosis and treatment. He then does a one-stage transpleural drainage which he considers the usual operation of choice.

G. B. P., Jr.

#### NEW AND NONOFFICIAL REMEDIES.

During May the following articles were accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Dietetic Cellulose Co.: CellufLOUR.

Intra Products Co.: Ven-Iron Cacodylate; Ven-Iron Cacodylate with Sodium Chloride.

#### Approved and Unapproved Arsenic Preparations for Treatment of Syphilis.

The following circular from the Bureau of the Public Health Service is reproduced as being of interest to all physicians:

May 12, 1920.

Bureau Circular Letter No. 219.

Medical Officers, U. S. Public Health Service, and Others Concerned:

Your attention is invited to the extensive exploitation through advertisements in professional journals and otherwise of various arsenic preparations which are not related to the arsphenamine group. The preparations referred to are sold with claims in regard to their value in the treatment of syphilis, which are unwarranted.

In the opinion of this office it is in the interest of all concerned that the subcutaneous, intramuscular or intravenous use of arsenic in the treatment of syphilis be confined to preparations of the arsphenamine group, as these agents are of established value and are produced under the regulations of the Public Health Service. The following firms are now licensed for the manufacture of arsphenamine and neo-arsphenamine:

Dermatological Research Laboratories, 1720 Lombard street, Philadelphia, Pa.

H. A. Metz Laboratories, 122 Hudson street, New York, N. Y.

Diarsenol Co., Inc., Buffalo, N. Y.

Takamine Laboratories, Clifton, N. J.

The Lowy Laboratory of Newark, N. J., has been granted a license to prepare a stable solution of arsphenamine.

It is not the desire of the bureau to limit clinicians in the choice of agents of recognized worth, but in the case of arsenic preparations, not members of the arsphenamine group, the available evidence indicates that their routine use is inadvisable in the treatment of syphilis. If it is desired to use any of these preparations in a purely experimental way previous authority from the bureau should be secured. Applications for this authority should be accompanied by a statement as to the composition of the drug, including the structural formula and the reason for its use. All information available on the value of the preparation should be forwarded.

H. S. CUMMING,  
Surgeon General.

#### Influenza and Tuberculosis.

Amberson and Burns supplement a previous communication on epidemic influenza among patients and employes of the Loomis Sanatorium, Loomis, N. Y., with a further analysis of the histories of patients who had influenza before entering the sanatorium and a record of the incidence and fatality of this disease among former patients. They also give a critical review of recent literature on the subject.

Of 1,227 traced former patients seventy contracted influenza and sixteen (22.9 percent) died of the disease. Of 199 new patients admitted between November 1, 1918, and November 1, 1919, forty-two, or 21.1 percent, gave a definite history of influenza. Of these forty-two, eighteen knew they had tuberculosis prior to their influenza, while twenty-six gave a history of previous symptoms that were presumably tuberculous. In twelve cases the onset of tuberculosis was definitely post-influenzal.

The authors conclude that tuberculosis does not confer an immunity to influenza, that influenza is not less severe among the tuberculous, that among their own patients the case fatality was higher than among the general population, that among a certain number of individuals influenza marks the inception of pulmonary tuberculosis, and that to ignore or deny the possibility of pulmonary tuberculosis as a sequela is to unduly defer diagnosis and early treatment.—American Review of Tuberculosis, April, 1920, Vol. IV, No. 2.

#### Three Hundred Cases of Hearing and Speech Defect.

The Federal Board for Vocational Education estimates that there are among the injured veterans of the World war between ninety and one hundred cases of men whose speech became absolutely unintelligible as the result of mouth or neck wounds, aphasia, or other causes. Twenty-five percent of these men are still in the hospital and fifty percent are in training or approved for training. The courses followed are agriculture, auto mechanics, commercial courses and chemistry.

There are probably several thousand men throughout the country who became deaf in one ear, or who have suffered slight impairment of hearing in both ears. However, there are only about two hundred for whom lip-reading is necessary. Therefore, the approximate number of hearing and speech defect cases will be about three hundred.

#### Epidemic of Granular Trachoma in Algiers.

The White Nuns of the Sahara are treating the eyes of hundreds of children who have been blinded by the plague that is sweeping the oasis towns of the Sahara desert. With Biskra, the "Garden of Allah" oasis, as their headquarters, they travel on camels from oasis to oasis. The services of the French military doctors are required to prevent the spread of the disease among the French colonial army and they are unable to care for the natives.

Dr. Toulant of the Pasteur Institute of Ophthalmology, who has been conducting experiments on a herd of monkeys in an effort to isolate the causative organism, has informed the American Red Cross that eight of every ten children in the Sahara are affected.—American Red Cross News Service.



# Colorado Medicine

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## Editorial Comment

### THE COMING ANNUAL MEETING.

The date of the 1920 meeting of the Colorado State Medical Society has been carried regularly in this journal, but it may not be out of place in this, the last issue of **Colorado Medicine** before the meeting to remind members that the regular sessions will be held September 7, 8, and 9 at Glenwood Springs, the usual preliminary meeting of the House of Delegates to take place on the evening of September 6, Monday. Delegates who cannot attend the meeting should see to it that their alternates are so advised.

The Committee on Scientific Work, which has charge of the scientific program, announces the good fortune of securing as honor guests Doctors Joseph C. Beck of Chicago, George W. Crile of Cleveland and Victor C. Vaughan of Ann Arbor, who have consented to deliver addresses, possibly two of which will be delivered in the evening. Dr. Beck's subject will be "Malignant Diseases of the Head and Neck, with Special Reference to X-Ray and Radium Treatment"; Dr. Vaughan's, "State Medicine: Should It Be Developed, and, if So, Along What Lines?"; Dr. Crile's address will be on "The Surgery of the Gallbladder and Ducts".

The committee has thought best to keep the number of scientific papers within smaller bounds than heretofore, with the double purpose of obviating postponement of the schedule and allowing longer time for discussion, always an important and profitable feature of the program.

While this will be the fiftieth meeting of

the state society, it will not be the fiftieth anniversary of its organization, as the society will be only forty-nine years old, the first meeting representing its birthday.

### THE PSYCHOPATHIC HOSPITAL VICTORY.

It is with no little pleasure that the committee announces that a sufficient number of signatures on the petition for the psychopathic hospital appropriation have been obtained, and it has been stated by the office of the secretary of state that the bill provided for will appear on the ballot at the November elections.

Aside from the worthy provision implied by this successful campaign, it is a signal indication of what may be accomplished in public health or institutional matters by concerted action of the medical profession.

As far as the Colorado State Medical Society is concerned, the matter of providing a psychopathic hospital for the study and treatment of acute insanities at a time when such treatment can be productive of the best results, is successfully concluded. It remains now for the public to be informed of the need for their support in the elections and the remaining work for the members of the profession in this matter is one of education.

It seems needless to add that the establishment of such an institution is in no way inimical to institutions, both public and private, already established, as it has been the experience in all communities where increased facilities for the care and aid supplied to the dependent infirm, mentally or physically, that it is coincident with increased numbers being reported—the increase coming from those who have pre-

ferred to endeavor to provide for their incompetents, rather than to subject them to the inadequacies of preexisting institutions.

The committee is pleased to acknowledge with gratitude the assistance and cooperation of the state profession in this important altruistic movement.

D. A. S.

### THE NURSE AS ANESTHETIST.

Looking backward a century or so one sees the typical physician in a character rôle considerably differing from that of his fellow of today. We are familiar with the picture of him that has been handed down by tradition and literature as ministering devoted attention to his patient in every practical way, applying his own poultices to body and soul, spending burdensome, sleepless hours with a case, watching minutely for every change in expression, action or general appearance by which he was accustomed to judge the course of disease. Undoubtedly there has always been "practical nursing", but many features of that art were apt to be assumed by the old-time doctor along with all else, and he was as intolerant of interference by any one in that function as the doctor of today is of the meddling with his general directions. The delegation of sick-care to others has been gradually increased in later years until today we have the profession of nursing rather distinctly separated from the physician's sphere, at any rate little practiced by him; and even the country physician, so recently the prototype of the old-time doctor, has through the agency of good roads, the automobile and the aeroplane become a city doctor in effect, rushing from patient to patient, making short stops and leaving directions for others to carry out. Perhaps it is true that the element of science, which is the basis of modern medicine, has attracted men to that field who are unfitted to be nurses, although becoming eminently successful diagnosticians and directors, and that one who is a "natural-born" nurse would make a poor modern doctor. However that may be, the trained nurse exists and few if any of us would care to have her disappear. It remains, then, to draw the proper line between her duties and the physician's, or to deter-

mine definitely just what particular acts are "nursing" and what are "practice". To say that a nurse should only carry out a doctor's orders does not properly define her duties nor her privileges. A doctor might order that she amputate a leg, or she might fail in an emergency by withholding a proper procedure because the doctor left no order.

The criterion is simple. It is qualification for the act to be performed. On that basis all the duties of a modernly trained nurse in advance of what the "practical" nurse does are well understood, but there are certain acts quite often performed by her which bring up an honest question as to whether she is not stepping out of bounds in their performance.

One of these is the giving of anesthetics. The question to be decided is as to her qualification. Let us then first consider what constitutes qualification for giving an anesthetic. For one thing, the administrator should know as nearly as possible the patient's physical condition at all stages of anesthesia. This must be admitted as being for the best welfare of the patient. It would seem off-hand and immediately to exclude the unsupervised nurse, except in emergency, for a physician has superior training in diagnosis and physical examination and can therefore approach a more nearly exact determination of the patient's condition. There remain, then, the cases where a nurse may be used as anesthetist in emergency when a doctor is not available, and in institutional work where she may be trained under a physician and is more or less under the eye of the surgeon during an operation. The latter situation would seem to justify in no particular the employment of a nurse, for if there is one thing that adds most to the peace of mind of a surgeon and, therefore, to the better performance of his operation and welfare of his patient, it is a feeling that he can depend upon his anesthetist's judgment and need not give his attention to that phase of the operation which indeed he can not do properly.

The question is really a part of the general subject of technicians in medicine, and it would seem, reasoning from the premise that



qualification is essential for the patient's welfare, that a technician is justified only in such work as does not require the education and knowledge peculiar to physicians. In clinical laboratory work, which becomes routine regardless of the individual studied, the technician may be competent; in an x-ray laboratory he may perhaps do certain simple work; but most radiography, all gastrointestinal work and most fluoroscopy, require knowledge of anatomy, physiology and pathology, and some of it really requires a previous general practice for ready application of knowledge gained; opticians, technicians in refraction, are to be deprecated on the ground that their knowledge of ocular disease does not equal the oculist's, hence the patient may suffer from sins of omission. It appears, then, that in a procedure as grave as the production of anesthesia, where the patient's welfare is decidedly at stake and is dependent upon the administrator's knowledge, the nurse anesthetist should be countenanced only when a doctor is not procurable for an urgent case, in which event the nurse is needed and the patient is receiving the benefit of the best knowledge at hand as to his condition, which is the nurse's.

The National Anesthesia Research Society has been advised that fourteen county societies in California have adopted resolutions within the last few months, reading "That we favor the limitation of the administration of anesthetics to regularly licensed physicians and surgeons".

In connection with this county movement the House of Delegates of the California State Medical Association, meeting at Santa Barbara, took formal action, viz.:

1. That the administration of an anesthetic is always the function of a legally qualified medical practitioner.

2. That the administration is best performed by physicians specially trained or who have made a specialty of this subject.

3. That wherever available, hospitals and public institutions where anesthetics are administered, employ only physicians as anesthetists.

4. That this society condemns, under all circumstances, the training and qualification of lay persons as anesthetists.

5. That no hospital shall be deemed to have acceptable standing which charges a fee for an anesthetic unless such anesthetic has been administered by a legally qualified physician.

At its annual meeting in April the American Association of Anesthetists unanimously adopted the following resolution: "Whereas, The American Association of Anesthetists is committed to the advancement of the science and art of anesthesia in all that relates to the welfare of humanity, through the medical and dental professions; and,

"Whereas, The advances in medical science are making it increasingly clear that the administration of anesthetics is a factor of practically equal importance with diagnosis, treatment and operation; and,

"Whereas, There is an increasing disposition on the part of a few surgeons and hospitals to commit the administration of anesthetics to nurses, office assistants and others without adequate qualifications, exploiting such services to their commercial advantage, according to testimony adduced before this association, thus jeopardizing the health and welfare of patients and increasing the death rate in operations; and,

"Whereas, Anesthesia is in a state of evolution, and those who advocate lay anesthesia would defeat any further progress in this branch of medicine; therefore, be it

"Resolved, That the American Association of Anesthetists places itself on record as unalterably opposed to the employment of lay anesthetists, nurse anesthetists and all other types of anesthetists who shall not have graduated from recognized medical or dental colleges and have been licensed to practice medicine or dentistry; and, be it

"Resolved Further, That the American Association of Anesthetists will inaugurate and prosecute legislation to protect the medical and dental profession and the public from such inadequately educated and trained anesthetists whenever such action is necessary."

The Medical Society of the District of Columbia, with a membership of 1,237 physicians, has passed this similar resolution: "Resolved, That the Medical Society of the District of Columbia go on record as in favor

of the limitation of the practice of anesthesia to regularly licensed physicians, surgeons and dentists, and graduate nurses in cases of emergency, or medical students for purposes of instruction."

The University of Maryland Medical School, which several years ago created a department of anesthesia, has made the head of that department a full professor.

If anesthesia is important enough to justify a separate department for its teaching, and has reached the dignity of a specialty with many physicians, it surely should be maintained at the high standard which such measures tend to set for it.

It is often well to apply the Golden Rule in medicine. Which would one prefer as anesthetist for himself or his family, a nurse or a physician specialist?

It might be well to consider at the coming state meeting the following resolution which has been formulated by the American Association of Anesthetists as a model for adoption by state medical associations: "Whereas, The safety of patients, progress of surgery and hospital service demand the rapid extension of the specialty of anesthesia; therefore, be it

"Resolved, That the . . . . . State Medical Association hereby instructs its delegates to secure the establishment of a section on anesthesia in the American Medical Association at the Boston meeting, June, 1921."

#### **FEE REGULATION FOUR THOUSAND YEARS AGO**

We are told in a bulletin of the National Geographic Society that the code of Hammurabi, written about 2000 B. C., was the product of a civilization of a high order, the laws being arranged in a definite and logical order, based upon accepted judicial decisions.

"The code of Hammurabi fixed the charges of physicians and surgeons. If a physician cured a broken limb or healed a diseased bowel, his fee from the gentry was fixed at five shekels; from the commoner, three, and from the slave, two. The surgeon for an operation upon the upper class re-

ceived ten shekels; the lower, five, and a slave, two.

"In order to discourage the surgeon from making rash operations, severe penalties were fixed in case of unsuccessful ones. If the patient died, the surgeon's hands were cut off. In the case of a slave, he had to replace him with one of equal value. If the slave's eye was lost, he had to pay half the value of the slave."

It is stated further that the code recognized the above three grades of society—the aristocrat, the pleb and the slave. Professional men were among the ranks of the aristocrats, but we are not told whether medicine of that day ranked as a profession.

Perhaps those of us who are inclined to feel chagrined at the smallness of the present fee schedule allowed by the state industrial commission should take heart when we consider the progress made in four thousand years—we are at least not subject to penalties of mutilation. However, the "consider how much worse off you might be" philosophy was never very consoling to the writer. Furthermore, how much is a shekel?

#### **THE PSYCHOPATHIC HOSPITAL—A REMINDER.**

Whether or not the psychopathic hospital which our legislature decided we should have will be built and functionate will depend upon the result of the vote for an appropriation at the fall election. Commendable altruistic work was done in this cause in securing signatures to petitions; it should be borne in mind that still more important (and more onerous) work is to be done in instructing voters with whom we come in contact as to the purpose and need of the institution.

Dr. Frankwood E. Williams, associate medical director of the National Committee for Mental Hygiene, has said:

"An individual bereft of his reason has rights as an individual that must be protected, but in protecting his rights as an individual we must not forget that he has rights as a patient, and that the hope of soon regaining his rights as an individual may largely depend upon the respect that



is given, at a critical time, his rights as a patient. \* \* \* A psychopathic hospital, in conjunction with its other functions, should serve as a prophylactic and educational station. Standing in a community on the plane with the general hospital or other specialized hospital it emphasizes mental disease as a disease and should serve as a center to which may come for advice and counsel those suffering from psychoneuroses and the early stages of mental disease as easily and freely, and with as little prejudice, as those suffering from the early stages of tuberculosis; a center to which can be brought for diagnosis the supposedly backward child, before further social damage has been done; a center to which parents aware of the neurotic inheritance of their children can come for advice in their children's upbringing and protection. From its lecture platform adults should receive instruction which would lead them to a better understanding of their own complex emotions, sensations and impulsions, and practicing physicians should be instructed in the significance of certain early manifestations of mental disease, that they may be as capable in diagnosing and protecting these patients as they are those manifesting the early signs and symptoms of tuberculosis or cancer. Prophylaxis is but one of the many functions of a psychopathic hospital, but its possibilities as a prophylactic and educational center should not be overlooked."

### ABSTRACTS OF PAPERS.

To be read at the Fiftieth Annual Meeting of the Colorado State Medical Society, in Glenwood Springs, Colorado, September 7, 8, 9, 1920.

**Note**—The abstracts given below are those which are available at the time of going to press with the August number of Colorado Medicine.

The titles and abstracts here given are arranged in alphabetical order of the authors' names, and not as they will appear on the final program.

#### STENOSIS OF ESOPHAGUS.

T. E. Carmody, M. D., Denver.

Anatomy and embryology of the esophagus. Relation to other structures in the neck and chest. Etiology of stenosis. Treatment, surgical and non-surgical.

#### STUDIES IN ARTIFICIAL PNEUMOTHORAX UPON THE RABBIT.

H. J. Corper, M. D., O. B. Rensch, M. D., and S. Simon, M. D., Denver.

Artificial compression of one of the lungs of the rabbit by means of fluid or nitrogen gas has no visible macroscopic influence upon the number or type of the tuberculous lesions resulting from the intravenous injection of virulent human tubercle bacilli, regardless of whether the compression is occasioned on the right or left side, or whether it is occasioned a day before or a day after the injection. These results disagree with those found by Shaw. There was noted no difference between the number or type of the tuberculous lesions in animals with one lung compressed as compared to normal animals not compressed.

Suspensions of Prussian blue, scarlet R and starch injected intravenously into rabbits shortly (within one-half hour) after production of a right side closed pneumothorax were found uniformly distributed throughout both lungs immediately after injection and up to two hours thereafter, followed by uniform gradual disappearance on both sides. Conclusions from this as to circulation opposed to Bruns' findings.

#### ROENTGENOGRAPHIC STUDIES IN ASTHMATIC BRONCHITIS.

(Illustrated with Lantern Slides.)

J. B. Crouch, M. D., and F. A. Forney, M. D., Woodmen.

Definite x-ray pictures in asthmatic bronchitis:

Increased bronchial shadows.

Thickened hilus.

Broad mediastinum.

Knob at aortic arch.

Case reports.

Conclusions:

X-ray picture due to anatomical changes which are the result and not the cause of asthma.

Mediastinitis.

Arteriosclerosis.

Change in intrathoracic pressure.

#### THE WORK OF THE COLORADO STATE BOARD OF HEALTH.

R. L. Drinkwater, M. D., Denver.

Comparison of the work of our state with that of other states, to show the doctors the need of more funds to properly operate the

State Board of Health, and asking their co-operation in visiting the representatives of the state legislature in their districts, and their influence in getting the proper funds to conduct the State Board of Health along more up-to-date lines; need for the establishment of a department of sanitary engineering and a department of tuberculosis.

#### **TUBERCULOSIS OF THE EYE.**

William C. Finnoff, M. D., Oph. D., Denver.

Tuberculosis occurs in the eye more frequently than is commonly supposed. It attacks all portions of the eye and its adnexa, excepting possibly the crystalline lens. The disease is either acute or chronic and occurs in the eye in both the primary and secondary forms. The chronic types are most common and frequently occur in apparently healthy persons. Tuberculin is a valuable diagnostic adjunct and when intelligently administered is of great therapeutic value. Co-operation is necessary between the internist and ophthalmologist in determining the best course to pursue in the management of these cases.

#### **OPERATIONS UPON THE SKULL AND OTHER PROCEDURES EMPLOYED BY PREHISTORIC SURGEONS OF THE AMERICAS.**

(Lantern Slides.)

Leonard Freeman, M. D., Denver.

A brief consideration of American prehistoric surgery, especially that of the head.

#### **A SERIES OF CASES TREATED WITH RADIUM DURING THE PAST YEAR.**

C. B. Ingraham, M. D., Denver.

#### **OPHTHALMOSCOPIC PATHOLOGY.**

Edward Jackson, M. D., Denver.

The ocular fundus is seen with the ophthalmoscope enlarged twelve to twenty diameters, which may be doubled by special apparatus. Lesions are thus seen as with a low power microscope, and their changes followed during life. A large range of tissues—epithelium, connective tissue, nerves of various kinds, and two blood vessel systems—are thus studied throughout the course of disease and in normal relations; instead of postmortem, with relations difficult to identify. Striking instances are given of pathologic facts thus discovered which are of high value. The student may thus

gain a conception of pathology superior to that gained with the microscope, as the latter is more definite and exact than may be obtained from reading and pictures. The combination of ophthalmoscopy with other methods in studying pathology gives distinctly superior results.

#### **CERTAIN ASPECTS OF GASTROINTESTINAL DYSPEPSIA SUGGESTED BY MORE RECENT METHODS OF STUDY.**

Tracy R. Love, M. D., and Wilfred S. Dennis, M. D., Denver.

Importance of more thorough study of digestive disorders. Simplicity of methods employed. Symptomatology. Confusion resulting from similarity of symptoms. The causes of failure of certain operative cases to relieve symptoms: (a) functional habit, (b) presence of other mechanical factors at first unrecognized or later developed, (c) presence of intestinal disturbances. Simplicity and value of fractional gastric analysis. Errors of older methods.

Consideration of intestinal tract as a medium for organisms. Their possible influence on gastric secretions. Nature of examination of intestinal contents. Test meal. Method of examination. Interpretation of results, application of information gained by combined methods.

#### **THE FIELD OF MEDICAL EDUCATION IN COLORADO.**

C. N. Meader, M. D., Denver.

Medical education a proper function of a state university; training in medicine viewed as a manufacturing proposition; supply of raw material; nearness and strength of competing plants; need and demand for product; essential factors in a modern plant. Burden of inadequate training and responsibility for provision for proper training rest upon citizens of the state. Conclusions.

#### **ARTHRITIS—SACROILIAC AND LUMBOSACRAL—USUAL TYPES DUE TO OVERSTRAIN.**

George W. Miel, M. D., Denver.

Their common occurrence (more particularly the former) and trying persistence in many instances. A lack of interest on the part of the profession, probably from want of appreciation of these conditions and those allied in disabling "back-ache," has made possible the existence of several unnecessary pathies and cults which, dealing essentially



with them, have thrived and made them the means to extensive inroads into the legitimate practice of medicine.

These patients should receive more consideration, including a painstaking and accurate diagnosis. They are amenable to intelligent treatment with encouraging course, and usually satisfying results, for which in their fullest appreciation I consider the profession indebted to Goldthwait.

#### BRANCHIAL FISTULAE; WITH REPORT OF A SURGICAL CASE.

Lewis I. Miller, B. A., M. D., Denver.

Of the four branchial clefts and intervening branchial arches in the four weeks' fetus, only the first cleft should persist, forming the hyomandibular cleft from which develop the ear, auditory canal, eustachian tube, etc. The other three should coalesce in fetal life, leaving the neck smooth. If closure does not take place, these clefts persist as congenital formations, known as branchial cysts or fistulae.

Description of various forms of these defects.

Treatment: Condition cured only by recognition of developmental anomaly and its complete dissection and removal.

#### OBSERVATIONS ON THE PATHOLOGY AND TREATMENT OF CHOREA.

G. A. Moleen, M. D., Denver.

Remarks on the grouping of the choreas. Peculiarities of choreic movements as viewed with reference to their localizing significance. Purposive vs. pseudo-purposive movements. The increasing evidence of the relationship of chorea to rheumatic and "rheumatoid" infections. The tabulation of sixty-two cases of chorea with regard to the incidence of diseases attributable to the diplococcus rheumaticus in the case histories. Brief discussion of the chief points in the treatment, with especial reference to the effectiveness of salicylates intravenously administered.

#### WHY DIPHTHERIA?—REASONS AND REMEDIES.

J. W. Morgan, M. D., Denver.

Cases of diphtheria and deaths in Colorado in the past five years.

The blame for the presence of diphtheria may be divided about as follows: (1) Doc-

tors, (2) The State, (3) The People, (4) Local Boards of Health.

Doctors: (Some of them)—(a) Do not make a routine examination of the throats of all sick children, (b) Give too small doses of antitoxin, (c) Neglect to immunize the rest of the family, (d) Wait too long for the report of bacteriologist, (e) Do not take cultures from both nose and throat, (f) Do not make Schick tests and immunize with toxin-antitoxin.

State of Colorado: (a) Has no laboratory, hence can give no assistance in the detection of carriers, (b) Does not furnish free antitoxin, (c) Does not furnish free Schick test, (d) Does not require the use of Schick test in its institutions.

People: (Some of them)—(a) Do not send for the doctor in time, (b) Do not observe quarantine.

#### THE INFLUENCE OF PSYCHE ON GASTRIC FUNCTION.

Julius L. Mortimer, M. D., Denver

The stomach has its own automatic nervous system—Auerbach's plexus and the ganglion cells of Openchowski. Under normal conditions gastric function is also regulated by the parasympathetic and the sympathetic systems. Vagotonic and sympathicotonic dispositions.

Changes that can be brought about in gastric functions by emotional disturbances. The relationship of internal secretion to the nervous mechanism of the stomach. Gastric symptoms encountered in organic neurologic diseases. The neurogenic etiology of peptic ulcer. The action on the nervous system of toxins derived from disturbed gastric functions. Nervous dyspepsia as a symptom complex. Psychoneurotic dyspepsias. Gastric disturbances as an evidence of psychic insufficiency. The therapy of psychic dyspepsia.

#### LETHARGIC ENCEPHALITIS.

George E. Neuhaus, M. D., Denver.

Consideration of its epidemic character and its relation to influenza.

Localization of the lesions and their pathology.

Multiplicity of symptoms.

Difficulties of differential diagnosis and

the importance of prompt recognition of the disease.

Treatment and management of cases.

#### REMARKS ON TWENTY-ONE YEARS' OBSERVATION OF TROPICAL SURGERY.

H. Eugene Stafford, M. D., Manila, P. I.

#### HYPERTROPHIC TUBERCULOSIS OF THE ILEOCECAL REGION; MEDICAL AND SURGICAL ASPECTS.

A. S. Taussig, M. D., and O. M. Shere, M. D., Denver.

This type of intestinal tuberculosis occurs more frequently than is generally supposed. The condition exists as a primary form without marked clinical manifestations. In comparison with its frequency the paucity of the literature is striking. Condition first described by Villemin in 1868. Brief resumé of intestinal tuberculosis in general. Pathology, symptomatology and clinical picture of the type under discussion from the incipient to the stenotic stage. Importance of early recognition. Diagnosis and differential diagnosis. Complications. Prognosis. Medical and surgical treatment. Illustrative cases of three distinct types of the disease. Lantern slides.

#### ABDOMINAL PAIN; ITS SIGNIFICANCE AND SOME UNUSUAL OPERATIVE FINDINGS.

C. E. Tennant.

Pain in the abdomen of any degree or frequency should always be considered seriously. Neglect means too frequently a serious matter for the patient.

Certain types of pain occurring in definite locations in the abdomen have long been interpreted as clinical evidence of definite intra-abdominal lesions. Abdominal pain is often a sequence of some form of violence, exercise or food ingestion, and rightly interpreted often leads one directly to the intra-abdominal lesion.

Pain occurring in abdominal sites which are quite unusual is misleading, and at times becomes so confusing that the primary lesion may be overlooked. The point of rigidity may be more reliable as an index to the source of the lesion than the pain. Pain reflexes. Physiologic changes in the hollow viscera. A plea for the most careful consideration of clinical symptoms, "rigidity" and its definite location, as guides to the

true pathology in most types of abdominal pain.

#### A STUDY OF INTRATHORACIC MOVEMENTS. W. Walter Wasson, M. D., Denver.

An experimental study to determine the movements of the thoracic viscera, and especially the involuntary movements. The extent, duration and character of these movements are observed and their application in the portrayal of chest pathology by the Roentgen ray considered.

## *Original Articles*

#### THE MANAGEMENT OF SEPTIC JOINTS AFTER THE METHOD OF WILLEMS OF GHENT.\*

CHARLES A. POWERS, M.D., DENVER.

As time goes by, I believe that we shall recognize more and more the importance, first, of the discoveries made in surgery during the world war, and, second, the emphasis and development of certain things already in practice. I would mention in that connection the Carrel method, the surgery of the chest, the removal of foreign bodies, the surgery of the brain in relation to battle casualties, the management of non-union after fractures, the management of fractures themselves, facio-maxillary surgery, and the particular subject which it is my privilege to bring before you this afternoon.

If the Carrel-Dakin method be considered the most important thing brought out by the war, it seems to me that this principle of Willems may very well be thought the second in importance. In 1909, Willems of Ghent brought out his results with the treatment of joints in simple hydrarthrosis and hemarthrosis by aspiration followed by early, active mobilization. He found the results under the use of such measures better than under the old plan of confinement. At the beginning of the war he first extended this mobilization principle to wounds made by puncture and incision; second, a bit later, to circular sutures of the patella; third, to wounds of the soft parts of the

\*Remarks made at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1919.



joints, especially lacerated and contused wounds of the soft parts of the joints; fourth, to moderate osseous lesions. As he went on with this development of the principle he became more and more satisfied with the constant improvement in his results. In April, 1918, Willems brought to Paris, to the Inter-Allied Surgical Conference, about twenty of his own cases, some of which had pursued from the beginning an aseptic course, but a considerable number of which had been complicated with purulent arthritis. It was my privilege to go out, with Willems to a Belgian hospital in the outskirts of Paris and look over these cases in detail. They were most surprising. Imagine, if you please, a man walking about in comfort: He pulls up his sleeve, takes off an aseptic dressing and exhibits an open wound of the elbow joint. He gradually extends his elbow and squeezes out two or three teaspoonfuls of pus, flexes it again and squeezes out more secretion, gradually emptying the joint. The same with the knee; a man with an open knee joint, with incisions on either side through the synovial membrane, flexes his knee and squeezes out pus. It was a very astonishing thing! Certainly, I don't think that any of us had known of the principle or thought of it before. And these cases were doing extremely well. The man with the open knee joint was walking with a cane or without a cane, and, as I say, when he took a dressing off he flexed the joint and squeezed out pus.

We began with the application of this principle at our hospital at Neuilly (American R. C. Military Hospital No. 1, A. E. F.) in early June of 1918, when we began to have the American wounded in large numbers. Practically everything which came in to us was septic; practically every case was infected. I might say, Mr. President, that in this particular hospital when we had the French from September, 1914, until May and June of 1918, the time when our own troops went into action in considerable numbers, almost all battle casualties which came to us were in a condition of infection. These Americans who came to us in early June came down from the Bois de Belleau region, the Cantigny region, the region above Cha-

teau-Thierry, and they arrived from twelve to sixty hours after being wounded; the first week in June almost all were unoperated when they reached us. We began with the knee joint, putting into practice this principle of Willems, and we were pleased with it.

I am not able to give you detailed results. Our place had a very heavy service in the summer of 1918; our hospital got up to 1,500, 1,600 and 1,700 surgical beds. Our staff was constantly overworked all summer; there was no time for the collection of statistics. Furthermore, as most of you know, we had gotten down at that time to the field card for the American wounded—the field card which went with the soldier, and when the soldier was evacuated the card went with him. I can only give you the results as we estimated them when I came away. We had had about twenty-five knee joint cases managed in this way, and we were all agreed that our results were very much better than they had been under the old method of tube or gauze drainage with immobilization.

Now, let us take an illustrative case: A soldier comes in, let us say, twenty-four hours after being wounded, having a perforating machine gun bullet wound of the knee joint without an osseous lesion. He first goes to the x-ray room and is then examined clinically. His joint is distended and has all of the evidences of being purulent; the needle withdraws pus. Under ether a long incision is made at the outer side of the joint through the capsule, and a like one on the inner side; an endeavor is made to place the incision pretty well back at the back part of the capsule—not an incision just alongside the border of the patella, but fairly well back, as far back as we can get it. The joint is washed out, and we explore it with the gloved finger for a bit of clothing or other foreign body. (Naturally, if there is a foreign body, it is removed). The joint is washed with salt solution, and a large aseptic pillow dressing put on and loosely held in place. We often held these with sterile clothes-pins instead of bandages.

Two or three hours after the patient came out of ether he was asked to lift his thigh

from the bed; he put his hands under his thigh, lifted it up, tried to get his heel off the bed, and tried to get motion at the joint. This was painful at first, sometimes quite painful, but he was urged to continue in this and to try to move the joint every two or three hours during the day, and every two or three hours at night, if he were awake. It was surprising to see how, in many instances, the motion would improve. In a simple case without fracture, at the end of fourteen to twenty-one days a man is apt to have a fair degree of motion. Further, at the end of two or three days after the operation, we encouraged the man to get up and begin to walk, without crutches, without a splint, sometimes with a cane, bearing his weight on the affected side and flexing the joint; as Willems very well says, "to squeeze out the pus from the joint." I can say to you that under this form of management our results improved.

In August, 1918, being then for the time being commanding officer of the hospital, I sent an invitation to Willems, who was an old friend of mine, and who was at his hospital in Hoogstaede in the little remaining portion of Belgium on which, as you know, King Albert and his brave army stood, to come down to Paris and give us a talk, and he did so. He made valuable suggestions, talking for perhaps three-quarters of an hour to our assembled staff. At that time, I think, our staff was one of about sixty officers. I had one case of compound fracture of the patella with suppurative joint in which I had, according to his suggestion, tried the method. It was not working very well, and Willems reoperated this particular case; it did rather better after his operation.

Willems emphasizes these points: First, a free incision each side of the knee, perhaps each side of the elbow or at the outer side of the elbow, and at the inner side of the ankle; and I had better say here, Mr. President, that Willems said that he did not apply this method to the hip or shoulder; our cases were almost entirely knee. We had, in my recollection, two elbow cases, each of which did quite well. According to Willems, the method ordinarily avoids ankylosis, and ordinarily avoids atrophy—two very im-

portant things. Willems emphasizes the importance of keeping the incision wide open either with gloved fingers or sterile instruments. It is very important that these patients should be instructed daily, either by the surgeon or by a competent nurse. Our place, in the summer of 1918, was running very heavy. The ward surgeons were heavily overworked, the nurses were sadly overworked, and I found it very useful to keep two or three convalescent cases who would go around and instruct the others. One of these teachers was a Chinaman from California; he had been caught in the draft, had been wounded, and had a septic joint. He came out very well, and I used him as an instructor. He was an amusing chap. His antics were so queer that the wounded soldiers did what he said; he was the best instructor we had in the place.

Willems emphasizes the relief of pain obtained on motion. At the end of one, two or three weeks, he says he has found (and I think that to a large degree we found the same thing) that pain accompanies the gathering of a secretion; the soldier himself would move his joint to empty it; squeeze out the pus, and thus relieve the pressure.

Willems emphasizes, also, the fact that one must not expect a cure too soon; if at the end of three or four or five or six months your man with a septic knee has a complete closure, with good motion and no atrophy, he will have done wonderfully well and the time will have been very well spent. Willems' own statistics were about like this in the spring of 1919: Out of one hundred cases, eighteen had been septic. (I will explain this proportion by saying that this hospital was very near the front line at Hoogstaede, so that he got his cases very early. His situation was very different from ours). In eighteen septic cases\* Willems had no amputations, no deaths, one resection, two stiff joints; certainly, far better results than we had ever been able to get. As I have said, I cannot give you our results at Neuilly because we did not have the time to look them up, nor did we have anybody to do it for us. I can only give you our general im-

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\*Original photographs of Willems' cases shown.



pression as to our exact results, that they were materially better than they had been before. Those of you who are interested in the subject will find a complete article by Willems in the *Medical Record* of June 7, 1919, and further, an article by Dr. Clarence McWilliams of New York in the *New York Medical Journal* of June 14, 1919, and another article in the *Annals of Surgery*, September, 1919.

Those papers give details much more fully than I can give them. I know there must be points which I have left out, but I have tried to give you the fundamental principles.

Now, as I say, we started with the simple purulent arthritis without fracture, and extended the method to fractures with moderate osseous lesions. I am certain that Willems' results were better than ours, but we suffered under two disadvantages: First, as I say, our staff was heavily overworked, and the individual case could not have the greatest possible amount of attention at all times, yet on the whole the cases did very well; second, and this was a very important thing, we were obliged to evacuate early. When we had the American wounded our standing order was to clear out everything as soon as it could be done, and our rule was to evacuate a given patient if he could travel for twenty-four hours and arrive at his destination in practically as good condition as when he left us. I say twenty-four hours—for after they left us they went to American hospitals farther back; we did not ordinarily know where they were going, and they might be fully twenty-four hours in arriving at a given destination. We judged that we treated about twenty-five cases by this method, and we all felt sure that our results were better than they had ever been before. I shall say that I am very certain that if we had known of this method in 1916 and 1917, our results in joint sepsis would have been very much better than they were under the older methods.

#### DISCUSSION.

**E. F. Dean, Denver:** Doctor Powers has given us quite a detailed report on the results obtained from the Willems treatment. It was my good fortune to be associated with a hospital from Colorado; it was located in London. After arriving in London, I was detached and sent to France to

become chief of an operating team back of the three American fronts. In that way I was able to see these cases when they came back from the front lines to our tent hospital where they received their first operative treatment. At Chateau-Thierry, the latter part of the fight, we received a large number of joint cases, particularly elbow cases and knee cases. Those were obtained mostly by machine bullets, as the men raised their elbow or raised their knee. Our instructions on this operating team were to clean out the joint thoroughly, to remove all foreign bodies and then close the joint. We received cases from there anywhere from four hours to five days after they were hurt. Some of these men didn't come back to the hospital short of four or five days, being located in different parts of the country, so we had the opportunity of seeing various types of injuries. We had the acute cases, and the chronic cases that came back to Paris. We treated with the open incision, the method which Professor Willems has recommended. It seemed to me a very deliberate way of handling joint surgery after leaving Colorado. Up to that time we could drain through the joints, put in a gauze drainage, and we aimed to keep the secretions out of the joint and promptly put it in a plaster cast or splints. We opened the joint freely, washed it out with ether, or a saline solution, and cleaned it out thoroughly. I think the beginning of that treatment was probably of the most importance, to thoroughly clean out the joint and leave no foreign bodies or portions of thread or clothing. In these joint cases that had been injured by shrapnel or machine gun bullets, and had some foreign bodies left in the joint, we found that the synovial fluid was practically sterile, practically clean, that the septic part of the joint was around the place where the missile had made its way into the joint. We made rather a study of that from what we call the ambulance laboratory. Those laboratory wagons were brought back of these evacuation hospitals, and we were given an opportunity to study occasionally that type of injury. The conclusions which we reached at that place were that the fluid was practically sterile, while the tissues around the entrance of the missile, and the region where it entered or lodged, were practically loaded down with bacteria. Now, we determined to clean that out. Before my time of going to France we saw a number of these cases in England which had been thoroughly cleaned out. It struck me that a large amount of skin had been sacrificed and an immense amount of fascia and muscle, and we had the job of putting this tissue together after the joints were thoroughly cleaned out and drained. The instructions to those operating teams were to cut down on the amount of debridement, to go through it as thoroughly as possible and cut down to the muscle until it quivered. I believe that was the whole success in getting these wounds ready for the treatment afterwards. But it was amazing after you operated a joint of that kind, and put in drainage, at the end of three or four hours to find the man bending his leg and moving it under the instruction of another patient who had gone through that student training. That was done in these evacuation hospitals immediately after the patient came out of the anesthetic in these tents. In these joint injuries, the elbow injury in particular, the elbow and knee, the men were instructed immediately to start using the joints. Occasionally you would find a man who would complain of a great deal of pain, but the majority of them would give us good free motion at that time. Then the patient went on frequently applying his motion, and as has been said, the patient would feel that



he got relief by squeezing out the joint where we had a septic case. Now, in the gas cases where we removed foreign bodies and took fractured bones, we closed up the synovial territory with catgut and then brought the muscular layers together, and the fascia layer, and brought them back in regular masses and closed up the wound solid, which was another new feature, after opening joints in Colorado here and having drainage. Then, that same patient would be instructed after the end of three or four hours to commence movement of the joint. The percentages I cannot give you. As Dr. Powers says, we were unable to get the figures, because of everybody being overburdened with work. It was remarkable to see the number of cases, however, the closed and unclosed cases that got motion within a certain time. After leaving the evacuation hospitals, these cases were sent back to the base hospitals at Paris and England. I then got back to London and was able to check up some of these cases as to the results obtained from the Willems treatment, and I am safe in saying that the larger number were getting full motion after the period of twenty-eight days. Some had limited motion, but most of them had pretty nearly complete motion. Those men were instructed and encouraged to continue that constant application of motion. The boys got so that they understood that was part of their treatment, and they applied it constantly. It is a marked change from the way in which we handled cases before; it is absolutely radically opposed to our former method of handling joint cases.

**G. B. Packard, Denver:** I would like to ask Dr. Powers if this same method of treatment was followed where there was considerable bone irritation or cartilage irritation, where you get a good deal of reflex muscular spasm, which would make it almost impossible for the patient to straighten the knee. I saw those articles that he referred to in the New York Medical Journal, and I noticed they made quite a distinction between active and passive motion. I fancy that possibly the involuntary resistance to passive motion is harmful. I have been surprised to see the results in following out the treatment of the late Dr. Murphy, who recommended very strongly extension and aspiration, the extension to prevent cartilage or pressure necrosis, and he also claimed that the danger in these cases was with the reflex muscular spasm causing ankylosis from pressure. I have been surprised in the last few cases of septic joints I have had to see the amount of motion that follows that treatment. This method of treatment of septic joints is certainly different from what we have been accustomed to, and I am very glad to have had the opportunity to listen to Dr. Powers' paper.

**Hart Goodloe, Cañon City:** This subject is a very interesting one. We had to fight it out before we heard of Willems, of Ghent, in Evacuation Hospital No. 1. As you know, Evacuation Hospital No. 1 was established north of Toul in what was called the quiet sector, until certain divisions went in to take their training and take over a portion of the line. They proceeded immediately to make it a more lively one, consequently we got a few cases every day. It was during this period that we had great opportunities to study military surgery, because the cases were held for not only the staff observations, but to demonstrate to many surgeons sent up from the base hospitals for instructions. We called it the school. It was during this period that such men as Dr. McWilliams, who has been mentioned here, Dr. Pool, Dr. Hoyer, Dr. Jopson and others, in the early months of 1918 were checking up results on the joint cases that were treated at this hospital.

Complete debridement and closure, except where great destruction to the bone occurred, were the methods pursued. A great many of those cases became infected, which necessitated opening of the joint for drainage. By some of the surgeons a circular incision was made, cutting the patellar tendon and draining the joint, leaving it wide open, while others were not so radical in their treatment, then afterwards using Dakin's solution. This treatment was not considered a success, for it meant a stiff joint from granulations, or necessitated either a resection or amputation. Incidentally there were one or two losses from septicemia.

It so happened that on one occasion a boy was brought in with a big .45 bullet wound that had gone through the external condyle of the femur, passing inward and downward obliquely through the knee joint, breaking off the inner tuberosity of the tibia. This case was given first aid antiseptic dressing and was x-rayed. The x-ray showed that a great deal of damage had been done to the condyle as well as the tibia. Major Pool came in the next day and asked, "What are you going to do with him?" I said, "There is no use trying to do a debridement, that involves so much damage to the bones; he cannot be any worse off if we open it up and drain it." The wound was opened down to the capsular ligament and drained through the original bullet wounds, allowing the blood and serum to escape, and it was Major Pool's suggestion a few days afterwards, when infection had shown itself, to make him move it a little to see if he could squeeze the contents out of the joint. The boy moved his knee without any pain. We were very much surprised. Serum stained with blood began to ooze from both the upper and lower bullet wounds in the knee joint; in fact, as the movement increased it squirted out. The boy was encouraged to increase the movement of that knee joint. We were very much surprised at the progress of the movement without any pain, and we wondered why there wasn't pain. There was not an officer present who wasn't dumfounded at the fact that a man could move his knee joint under such conditions without pain. The discharged secretions showed staphylococci in quantity, with some streptococci. The boy went along very nicely for some four or five weeks, being watched by the complete staff of Evacuation Hospital No. 1. The pus was thick at first, and then afterwards became thin. One or the other of the openings would close up and then break out fresh, and after awhile the pus became more or less serous in nature. We all figured that it was just a question of time until he would be walking with full movement, and the wounds would heal over entirely. I might tell you that while this was in the zone of advance, the activities were not of sufficient character to send all of those patients out immediately, and we often held as high as six or seven hundred patients, and we always held those patients in which we were particularly interested. This boy escaped being sent to a base hospital for a long time. I sent him over to the x-ray room several times for pictures, and the last one that I saw showed a marked development in the lower end of the femur of an osteomyelitis. I was afterwards told it was of such a character that it necessitated the amputation of this fellow's leg a little later on, but this was the first stepping stone to the drainage of the joint with active motion, with us. The mortality and the results were extremely bad, you might say, in comparison to the open method, which was pursued a very short time afterwards, and continued in use.

We had two joints, both elbow joints, infected at the same time, which were opened internally and



externally. The patient was encouraged to move those joints by feeding himself, and inside of three or four weeks they were entirely healed, with almost complete movement. Then the proposition came up, why can't all joints be brought under this treatment and treated in the same way, if there is not too much destruction of bone? We had very, very good results in the treatment of these cases. Within three or four hours after operation for infected joints, whether due to the high explosive shells or septicemia, movement was started—active movement, immediately—its extent being determined by the pain on movement when the bone was involved. We did not find a great many machine-gun bullets in the joints, just now and then. The treatment, of course, was to do a complete debridement, wash that joint out thoroughly until all oozing of blood stopped, fill the joint full of ether and seal it, sew it up, layer by layer, and if that joint became involved or swollen, the needle was put in and culture made to determine as to whether it was infected. If found positive, there was no hesitancy in opening the joint, laterally, as Dr. Powers explained to you, preferably as far back on the lateral surface as possible to facilitate drainage, and the patient was encouraged soon after the operation to move it. The ward surgeon had to watch and make those patients move the joints three or four or five times during the day, depending upon the severity of the injury. We found that the majority of cases would entirely heal, and in a remarkably short time could walk with full movement.

This subject is one of two big subjects, if not the biggest, that military surgery has brought home. The other is lung surgery. The treatment of septic joints as brought out by the astonishing results in this war will undoubtedly advance this particular branch of surgery, to the great benefit of humanity.

**W. F. Singer, Pueblo:** Any discussion of treatment of a septic knee joint, in the presence of any man who has had much experience in septic knees, cannot help but be interesting. I therefore take the liberty of presenting a case I had some two or three years ago in which I used a method of injecting white maple syrup into the joint for its hygroscopic properties. I wanted to avoid the absorption of pus from this joint, and therefore I super-sutured the tissues, and I used the sugar syrup for its hygroscopic properties. When I saw this man he had had a septic knee joint, caused by staphylococcus, for eleven weeks. They brought him in to me at St. Mary's Hospital, and his condition was pitiful; he had a temperature of 102.5° and a pulse of 38, and looked about to die. I immediately washed the joint out with a saline solution and put in the syrup just to the point of slight distension of the capsule. I then gave water and maintained the water at ten and five, and the convalescence was prompt.

**Fosdick Jones, Denver:** I have been very greatly interested in hearing this paper of Dr. Powers, upon this most important subject. I should like to ask as to the extent of bone injury in these cases, and also the character of the infection. Did bacteriological examination show a hemolytic streptococcal growth or a streptococcus viridans; and also as to whether in these knee joint injuries a full range of joint motion was obtained in twenty-eight days?

**C. E. Tennant, Denver:** There is one point in Dr. Powers' interesting paper showing the practicability of the treatment, and again, in connection with Dr. Freeman's suggestion about foreign bodies. It is this: As we look back upon the

history of the care of these joints, a few years past, we know that the effort was to remove the foreign bodies, but we still maintained the foreign body in a septic joint by using the drainage, and in the method which Dr. Powers has advanced here, of Professor Willems, we have the elimination of a foreign body by not using the drainage tube in these joints.

**Dr. Dean:** The motion was more complete in the knee than in the elbow. The elbow did not give as good results in that length of time as the knee did, and most of them were almost complete at thirty days.

**Dr. Powers (closing):** I will first answer the question of Dr. Jones as to the character of the infection. The general report came back streptococcus, or streptococcus with gas. There could be no worse infection than we had from the battlefields of France. We all know, those of us who were there, and those of you who were not there have read, that the infections were terribly severe. At our hospital at Neuilly we have never had quite as bad cases with the French as we had in June of 1918 with the Americans, and it is for the reason that on the 5th, 6th and 7th of June the Second Division went in unexpectedly and did not have hospitals behind. The wounded came down to us by ambulance, by motor truck, etc., and we got them from twenty-four to thirty-six hours after being wounded; they were very septic. As to the amount of bone lesion, regarding which Dr. Jones asked, Willems has applied his method in an increasing number of cases. I would refer you to Willems own paper on that. At our place we began with infection of the joint without fracture, and these joints were generally streptococci. We went from the simple infections without bone lesions to moderate osseous lesions—a chipping off of the external condyle, a chipping off of the head of the tibia (knee joint). We had two or three cases of compound fracture of the patella. The loose fragments were always removed. The joint was debrided and the bone trimmed up, so to speak. Just how far one can go in fracture cases is, I think, a matter to be determined by experience. Willems goes pretty far, and we all know him to be absolutely honest in everything that he says.

When I was in Washington last November (after return from France), I was asked to give a little talk in the Surgeon General's office, and I spoke on this topic. One of the men present asked if one would apply this method with private patients, and the reply was that one certainly would. I certainly would, without any question whatever. I am sure that we have nothing to lose. We can always put in drainage, but I believe that if drainage be put in the joint, this drainage should go only just inside of the capsule. At times we had to drain, especially with the fractured cases. But as I have said, and I think this was the experience of everybody who tried this out on a fair number of cases, the results were exceedingly encouraging.

I appreciate all that Dr. Goodlow has said. I am familiar with the work done at the Evacuation Hospital No. 1; it had the reputation of being one of the best American hospitals; it had Eugene Pool, Clarence McWilliams and other splendid surgeons. I am sure Dr. Goodlow will pardon me if I differ with him as to draining the knee joint posteriorly. Did I understand that correctly, Dr. Goodloe?

**Dr. Goodloe:** No, I meant laterally.

**Dr. Powers (continuing):** Oh, laterally, as far back as one can go! Yes, that is very important,



and at times we found that on making the long incision we could slip our fingers in, catch the capsule and slit it down the side, thus giving a little better drainage. As to the matter of primary closure, of which Dr. Dean has spoken, that is a matter of judgment, and it depends very largely upon the length of time that has elapsed. I think that in 1918 all of the armies got up to closing twelve hours after the given casualty. I think that some surgeons closed at eighteen and twenty-four hours. We did not get these early cases. Our cases were septic when they came to us, for we were well back of the lines. At Chateau-Thierry we were forty-one miles back of the lines, and the lines were not again as close to us.

Perhaps I did not emphasize that the motion must always be active—no passive motion—always active motion on the part of the patient. We never used passive motion. The active motion squeezes out the pus. As to Dr. Packard's question regarding cases with irritation of the cartilage, and by that I suppose Dr. Packard means what we call the "velvety" joints?

**Dr. Packard:** Where there is a great deal of muscular spasm.

**Dr. Powers (continuing):** We got our cases twenty-four hours, thirty-six hours, forty-eight hours after being wounded. Those are the cases to which we applied the method. If asked whether one would apply this to a three weeks' old case which he saw for the first time, I would reply that I would try it, but that I do not know how it would behave, as I have had no experience with this particular type. I believe that when the secretion gets thin, as I think Dr. Goodloe said, one may properly consider closing the incision at one side of the knee, leaving just a little opening at the other side. I very much wish that we had had this method in 1916 and 1917, so that we could have carried it out through some months. We were obliged to evacuate the American wounded early.

Someone has asked if we should wash out the joints? Willems does not and we did not. I think it is opposed to the Willems principle. Wash out when the patient is under ether at the time of operation, but not afterward, other things being equal.

## ANNUAL REGISTRATION OF PHYSICIANS.\*

DAVID A. STRICKLER, M.D., DENVER.

By annual registration of physicians we mean that each and every licentiate under the medical practice act shall be required to file annually with the clerk and recorder of the county in which he resides an affidavit stating his name and address and the nature and number of his license, and pay a small fee, which shall be available to the state board of medical examiners for administrative purposes.

The question is a live one in many states, perhaps most so in Illinois, where it is being supported as essential to successful admin-

istration by Francis W. Shepardson, director of registration and education for the state of Illinois. The secretary of the California Board of Medical Examiners, Dr. C. B. Pinkham, after a trial, speaks in glowing terms of the results of such provision in California, and nearly every executive officer of the licensing boards heartily favors the measure.

I shall confine myself to Colorado's need of it and some of the benefits to be expected from it.

Under the present law, as well as its predecessor, provision is made for recording the license in the county in which the licentiate shall practice and there is further provision that without such record the license shall be null and void. There is no provision requiring the county recorder to report to the State Board of Medical Examiners, hence the board has no official knowledge that any man is recorded in the county in which he practices, or in any county. When once recorded the name remains on the books indefinitely, irrespective of the later residence or death of an individual. The licentiate of Colorado carries his license with him, and our office has no record of his future moves. He may register it in any county in the state, in as many of them as he may elect, or in none of them. He may remain in the state, may or may not practice, or may leave the state without our having any means of tracing him. He may engage in business of any kind for any number of years and later re-enter the practice of medicine without any supervision at a time when he is totally unfitted for successful practice. He may engage in the grossest frauds in other states, and when driven from them return to Colorado with a perfectly secure right to take up his work, or another may come with his certificate and practice under it without much danger of detection. It is not an uncommon occurrence that an individual enters the state and proceeds to practice the healing art without making any effort to secure a license or, failing in the effort, proceeds to practice without a license. This is not true of the better types of men, nor with the better educated physicians, but of the individuals who, for evident reasons, are the

\*Read at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1919.



least desirable citizens and the greatest menace to public health. A few years ago a Dr. Hutchinson came from Kansas, located at Glenwood Springs, opened an office as an eye, ear, nose and throat specialist; became a member of the county society and later was elected its secretary, thus becoming closely identified with this state society. Having some domestic trouble, he attempted to kill his wife and other members of his family, and committed suicide. Noting an account of his suicide, we went to our files to record his death and found that no such person had ever been licensed, nor did we have any note indicating that he had ever been in the office. How many may now be practicing in the state under like conditions we have no means of knowing. It must be evident that we should have the means.

Assuming that we learn of a man in practice without license, after he has established himself in a community, it is a serious problem to successfully prosecute him unless he has made the enmity of some substantial and highly respected citizen who feels enough interest to push the case against him. Few competing physicians care to be a party to the prosecution because of the ill-feeling created in the community which is directed toward the licensed physician, although their appeals to the State Board of Medical Examiners are very urgent and their criticism of its failure to do what does not lie in its power are at times very forceful. A recent case bearing on this may be cited. One Dr. Benj. J. Patterson of Pratt, Kan., was reported to be practicing medicine in La Jara, Colo., and inquiry was made of our office as to whether he had a license. As is our custom, we informed the writer that he was without a license, and if practicing, should be prosecuted by the district attorney in the county in which the offense was committed. As no district attorney is interested enough to look up the evidence or to prosecute without some definite push or incentive from others, the doctor reporting said he would stand back of the case and see it through, which he did, with the result that Dr. Patterson plead guilty and paid a fine; but the judge and all connected with the court, as well as many people of the community, condemned

the doctor for pushing the case. Our subsequent information showed that Dr. Patterson is a graduate of a school not recognized by the Colorado board; that he had been found guilty of manslaughter and abortion, and had been sentenced to two years in the penitentiary, and was out on bail while the supreme court of Kansas held the case for review; and, further, that the judgment of the lower court was subsequently sustained. Patterson posed in Colorado as a benefactor by looking after "flu" cases in sparsely settled communities, but found occasion to do many surgical operations, which were reported by our informant as being bunglingly done. The points emphasized in this case are, first, that undesirable men are prone to come clandestinely and open office without a license, and, second, that physicians who are instrumental in their apprehension are unjustly criticized by the lay community, a fact which deters many merited prosecutions.

As before indicated, the licensed individual has broad liberties extending over long periods of time without any supervision by the board of licensure, which at times leads to rather perplexing conditions, e. g.: in 1900 one Wm. J. Athens was licensed in Colorado on a diploma from Baltimore Medical College. No further information of him was on file. In 1915 the license of Wm. J. Athens was recorded in Denver county, and a man going under the name appeared in connection with an advertising doctor by the name of Moore. We soon learned that this individual had gone under various aliases in California, and we felt confident he was not the man licensed under that name in Colorado. After considerable difficulty and some expense we succeeded in locating the original in Houston, Texas, where he had been in the cotton business for many years, and in having the Denver man arrested charged with practicing medicine under a false or assumed name. The case is now pending. The offense is a felony subject to penitentiary sentence. There is no reason in justice and equity for the continued license of Wm. J. Athens, the original, but there are cogent reasons why it should not continue in force even if he has no guilty

knowledge of the illegitimate use of his license, which we much doubt.

The foregoing are a few of the many problems in administration confronting the licensing board, which it is believed would be in a large measure solved by annual registration of licentiates. The sole purpose of the measure is to aid in the successful administration of the medical practice act, which is accomplished by:

1. Establishing annually a reliable list of the physicians actually in practice in the state, together with their addresses, there being now more than six thousand licensed physicians on record, of whom less than two thousand are in practice in the state.

2. Rendering it possible, by virtue of added funds and diminished numbers, to furnish every licensee with a full list of all licensed physicians in the state, and then put each and every physician in possession of knowledge relative to physicians practicing in any community that would enable him to inform the board of unrecorded individuals practicing medicine in his or other communities.

3. Rendering it possible for the board to collect and present evidence to the district attorneys and to assist in prosecutions, which are not now feasible because of lack of funds; thus relieving the licensed physician of the embarrassment of appearing against an unlicensed man in his community.

In order to create the necessary legal provision there was introduced in the last session of the legislature a bill known as Senate Bill 224, by Senators Knauss and McFadzean, entitled "An Act to Aid in the Enforcement of an Act entitled 'An Act Relating to the Practice of Medicine in the State of Colorado, adopted by the People at the Polls November 7, 1916.'" This bill was supported by the Committee on Public Policy and Legislation of the Colorado State Medical Society, by the Committee on Legislation of the Medical Society of the City and County of Denver and by the Medical Society of the City and County of Denver in session. It was recommended by the Committee on Medical Affairs in both the senate and the house, passed the senate with little or no opposition, passed with lit-

tle opposition first and second readings in the house, to be bitterly attacked during my absence while in Chicago attending the Federation of State Medical Boards meeting, by Representative Godsmen of Burlington, a member of the Committee on Medical Affairs, after he had joined in recommending that it pass and had promised to support it on the floor. His excuse to me was that three or four doctors in his district asked him to fight it and he was in duty bound to represent his constituency. In asking him for their names he said they had asked him not to disclose their identity. Three or four members of the house told me that they had been approached by a few medical men in opposition to the bill who in every instance asked that their identity be not disclosed. I learned of no open opposition nor of the arguments used against it. I feel quite confident that opposition to the measure by physicians is based upon misapprehension of the purpose and effect of the bill or upon some feeling of its encroachment upon assumed rights of the individual. Annual registration is common with licensed dentists, pharmacists, opticians, barbers, architects, etc. The license is not a property right, but a privilege and there is no inherent reason why it may not be subject to annual renewal, especially if some definitely good purpose is to be served by such renewal. Good men pay in many ways for the benefit of society, for police protection in the interest of the state and society, annual dues in fraternal organizations, for the advancement of the order and the protection of its members, annual taxes on property to protect their rights in the same. In annual registration, not only are the interests of public health conserved, but as well the morale of the medical profession. It should be deemed both a privilege and a duty of the membership of this body to support the measure. We should greatly appreciate the official endorsement of the Society.

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#### DISCUSSION.

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A. C. Magruder, Colorado Springs: There is so much that is applicable to each one of you personally in what Dr. Strickler has just said that I wish you might be able to get hold of this paper



and reread it. I have a copy in my hand, and two or three readings of the paper disclose each time something new and vitally important to the medical profession of this state. Dr. Strickler, as you know, is secretary of the State Board of Medical Examiners of Colorado. He has been in that position a number of years, and he is closely affiliated with the Association of Amalgamated Boards, a national organization, and almost every year he is in attendance. These matters are discussed by this national board, and where states have inaugurated such laws, the experiences of those state secretaries are given before this board. Dr. Strickler has just attended such a meeting, and he comes back full of enthusiasm based on the workings of a similar law in certain states of this Union. His office has to bear the brunt of the enactment, or, rather, the carrying out of the Medical Practice Act, and if we did nothing else than to make the work of that office easier for him, it would be a great blessing to the medical profession of this state, because he stands for you in protecting you against the quacks and the charlatans that come here to practice, and you have no idea how many are in this state at this time. Yesterday at a meeting of the board such a man appeared for the fourteenth time in four years to get a license to practice medicine in Colorado. Now, you gentlemen who meet each other casually, socially, professionally, do not begin to appreciate the necessity of looking after the workings of the Medical Practice Act, but if you could sit as a member of the State Board of Medical Examiners for one meeting you would see the necessity of such an act as Dr. Strickler has just presented to you. In every instance in which opposition was presented to the passage of this act at the last meeting of the Legislature, the physicians requested that their names be withheld. Now, that of itself is not a very encouraging feature. If a man is going to fight something, and he believes it should be fought, that it should not become an act, let him come out in the open. I know that there are some of the men in this room today who opposed this act for one reason or the other, but they are going to speak against this bill this morning. They have the manhood, though, to come out and show themselves, to play the game in the open and to let us know what their arguments are against it. We want to know just as much as anybody else what the arguments are against it, and if such arguments are greater than those for it, let us not have it; but the greatest argument that I have heard against the bill so far is the fact that you have to pay a paltry two dollars every year, and in addition to make an affidavit as to your residence and address before the county clerk. Now, those are small affairs, and if you knew just how much that meant to the medical profession of this state, you would be only too glad to cooperate. In our own town there was a doctor who left Colorado Springs under quite a dark cloud; he was gone for two or three years; the general public is easy to forget; he is back there now practicing just the same as he ever did; and with an annual registration matters of that sort would be overcome. Men could not leave the state and come back ten or fifteen or twenty years later, as the speaker has pointed out, and begin to practice again just as if they had been continuously in the practice all the time.

**J. W. Morgan, Denver:** Last summer, I visited, as some of you know, Colorado Springs, Pueblo and the Western Slope in the interest of the State Board of Health, with which I am connected, and I looked for doctors who had been listed in Pope's Directory and in the American Medical Directory,

and I figured they were about twenty-five percent in error—doctors were listed there who had been dead for a number of years, who had gone into other lines of activity, and I took the trouble of hunting them up and scratching the names off, and at least twenty-five percent of the names in the official directories are in error. We doctors, you know, are going to need a little compulsion. A government man came to the office the other day looking up the registration of births. He said: "You have got about half of them, about half in the state of Colorado," and he said, "The only states that get anything like correct registration of births are the ones that arrest the doctors. Pennsylvania keeps two men doing nothing else but hunting up doctors who refuse to register their babies, and have them fined."

There are also fee splitters in this state. I ran across one the other day in eastern Colorado. Dr. Strickler should have some money to prosecute these fellows who split fees. This bill was defeated in the Legislature by a doctor, I am sorry to say. I heard him make a speech in the House. These fifteen whose deaths the doctor just reported in his report on necrology will be carried in Pope's Directory for years, and when you look for them at the addresses given you find they are dead and gone. Some of the doctors have moved, and Dr. Strickler has no way of keeping up with them; so I say we people who are connected with the administrative work of this Board of Medical Examiners, and also the State Board of Health should have the aid of this law. We feel we need the aid of it very much.

**C. S. Elder, Denver:** I hope, in spite of the color of our president's hair, when he had hair and when it had color, that I might rely upon his good nature; that he will extend some degree of indulgence towards my frailty for discursive talk. He has often said to me that I ought to have been a preacher, which is his nice way of telling me that I ought never to have been a doctor. But I have occasion now to make him listen to one of my sermons. I remember when I was a child of reading a story of a drouth of three years' duration that fell upon Judea, and Elijah went up into Mt. Carmel and cast himself down on the ground, and after he had been there a while he sent his servant to the summit of the mountain and told him to look upon the sea and report what he saw. The servant returned and said he saw nothing, and again he was sent, and again he returned and said he didn't see anything at all, and the seventh time he returned and he reported to his lord and master that rising up from the sea there was a cloud on the horizon no bigger than a man's hand. I take my text from the Bible, and therefore I wish to speak about clouds that are no bigger than a man's hand. The first one that appeared on our horizon was this narcotic drugs act which we have praised here highly today, and it deserves much praise, but we must remember this thing—that it was introduced in Congress and passed as a revenue measure, and it never was a revenue measure; it is a measure to extend the police power of the government into territories where the government has no right to go. But Congress had the right to enact revenue laws, and so it called it a revenue law, but we who pay the revenue do not care anything about that. We saw the higher purpose of the act, and so we made no complaint, but after a while it got to be a serious matter with Uncle Sam, and now they are pretty nearly making it a revenue law—they have raised it a little bit—a mere incident soon becomes a practice, and a practice after a while gets to be a principle, and a principle after a while gets to be



tradition, and tradition led China for thousands of years and is leading China still, and us, a good deal. Look out for these little things away off on our horizon and not any bigger than a man's hand. And now, the secretary of our State Board of Medical Examiners has been no mean discoverer of these events; he knows that the doctor is a species of goose that can be plucked with very little squawking, and so he has the artistry to put another cloud on our horizon not any bigger than a man's hand. What is it for? It is for the annual registration of physicians. What is that for? It amounts to this, that every year every doctor gets a list of all the doctors in this state so that if another man, John Doe, comes to his place to practice he can look on that list and see if John Doe's name is there. Now, as a matter of fact, isn't it very much easier for a doctor if he wishes to know whether John Doe is entitled to practice, to write a letter to the secretary of the State Board of Medical Examiners and find out? Even if he had his list and looked at it, and John Doe's name wasn't there, he would not be justified in going to the district attorney and saying, "Here is a man coming to this state to practice without a license," because he might have come since the license was published—you would have to have a quarterly list, I believe—but I am not opposed essentially to the annual registration of physicians. There is a weightier cause for my opposition to this measure in my mind, and if Dr. Strickler should think that my remarks are worthy of any reply at all, I ask him particularly to reply to it, and that is this: The medical practice act in this state has always been the puking infant of the Colorado State Legislature; the legislators have never looked upon it with any parental pride; they have always seemed to feel that it is a child of questionable parentage, which was left upon their doorstep or forced upon them in some way or other, and if you will go, as you ought to go, to the members of the Colorado State Legislature some time to get an improvement in the Colorado medical practice act, you will find the legislator always saying this to you: "This is your act, this is yours, you have a law here which enables you to register physicians in this state." Now, why in the name of common sense shouldn't you have a law which will permit you to register osteopaths? That is what we used to say until we registered the osteopaths—register osteopaths, chiropractors or any other kind of a "path" that a person has the linguistic ability to name. That is what the legislator says—"This is your law." Now, what has our answer always been—that it is not our law? This is a law for the benefit of the people, to protect the people against dishonest practitioners and ignorant practitioners; that is what it is. Now, keep that firmly in your mind, or you will lose the whole thing. It is not our law and we don't care anything about it, except that we have a humanitarian interest in the welfare of the people. It is not our law. We only ask the Legislature that everyone who comes to this state to practice shall be of good repute and learned in the fundamental branches of medicine such as diagnosis, physiology, anatomy and so on; that is all we ask, and if anyone can practice among sick people without knowing the construction of the body and the function of their parts, then there is no need of a practice act in this state. I wish to remind my very good and very wise friend, Dr. Magruder, that on this extraordinary occasion he is in deep error when he says that Dr. Strickler stands for this and stands to protect us against quacks. He does not. That is, fundamentally, not his function; he stands for the people to protect

the people against these things. Now, I come to this point—the Legislature has always said to us: "This is your act," and if we support this his suspicion will be turned into a conviction. We can give all of our time and all of our substance to the suppression of tuberculosis, or any humanitarian measure, but we cannot, in high morals, give one penny to the Colorado State Board of Medical Examiners. We must always say to the Legislature: "This is not our act, this is an act for the good of the people, and it must be supported by you from the funds of the people"; always that, and nothing more; never allow any Legislature to throw this foundling back into the laps of the profession and say to the doctors of this state: "Here, take this thing; it is yours; put your full breast to its famished lips and give it nutriment." No, sir, we cannot do that.

I am not opposed to the annual registration of physicians. I see no benefit to be gained from it—none whatever. If the members of this state are alive to their interests they can communicate with the secretary, but I do not oppose the annual registration of physicians. I oppose any measure which will make the profession of this state support the State Board of Medical Examiners to the extent of one penny, and we ought all to be willing to go to jail rather than it should be so. Those are high morals.

I think, Mr. President, that my remarks are finished, and I will not intrude upon the time of the society. I have no doubt that I have made myself clear in this respect, and I only ask this, and ask that you insist upon it—that if this bill comes before the Colorado Legislature again, and if an annual registration should seem to you to be desirable, that it shall bear no other expense to the medical profession than a notarial fee. Let him go before the notary and swear that the statement he makes is true and pay the notary, but he shall go out free. It is not the two dollars that I object to, although I have known men who are in this state to whom that two dollars might become a burden. Many a little thing makes a large thing, that is true, but it is useless to say that two or three dollars for a license, two or three dollars to register each year, five or ten dollars to your medical society, all amount to nothing; they do amount to something in the end. As Dr. Strickler and Dr. Magruder have put this on high moral ground, I would not stand out on the two dollars if there were not ample, and to my mind, the best possible kind of a reason that we cannot give it. Give what you will, but never give to this. We have to stand by that; and remember, don't be persuaded to accept all these things because it is only two dollars. This is just another little cloud rising out of the horizon which has the possibility of swelling in its dimensions, multiplying in its numbers, and in time, if we are not attentive to it, it will pelt us with its hail.

**William N. Beggs, Denver:** In spite of the well-recognized eloquence of the preceding speaker, he has failed to convince me of the high moral character of the basis upon which we are to furnish any opposition to this measure. I have not given it a great deal of consideration as regards details, but I believe that the support of the profession is due to the measure, not because it protects the medical profession—we have no right to appear before the Legislature and ask for protection of the medical profession—but because it does protect the people in a measure, and every step in advance that we can take legitimately for the protection of the people is a step which we may be called upon to father upon high moral grounds.

Of course, possibly I may be afflicted with moral



astigmatism and cannot see the preceding speaker's point of view. We know in pathology we oftentimes speak of things as very beautiful, which, in themselves, are very unbeautiful. Now, in a similar way I might refer to myself as being a beautiful potential example of the objects of this law for good. I have lived and practiced in this state for twenty-three years, and not anywhere else during that period of time. However, I hold a license to practice medicine in the state of Missouri, dated before that time. I also hold the right to practice pharmacy in the state of Missouri, taken without a license, on the ground that I hold a license to practice medicine, and I have never practiced pharmacy anywhere. I have never taken any such course in pharmacy, either in school, or in a drug store as to justify my practicing pharmacy, but nevertheless I hold such license to practice; but unless the state of Missouri has some such provision for weeding out men who hold their licenses in pharmacy and medicine, I could return tomorrow and practice either medicine or pharmacy, and, in the latter case, without one iota of ability, except such as comes from a course of lectures in medical schools in my early days. Now, if I had, after coming to the state of Colorado, taken out my license here to practice medicine, and had then drifted into farming or some mercantile business, or promotions, or anything of that sort, for five or ten years, and then found I had not made a success at that and wanted to return to practice medicine, I would have lost my ability such as I might have had as a practitioner, but I would have had the same legal right to practice here in the state of Colorado under our present laws as I had at that time. Will any of you venture to say that certain members of the community at any rate would not have been protected under such circumstances if I had been debarred on the ground of not having been licensed annually?

So far as the annual dues is concerned, all business pays license fees annually much greater than ours, and so far as the annual license fee is concerned, there is no more reason why that should be wiped off the statute books or should not be enacted into a statute, than that the preliminary license fee for appearance before the medical examiners should not be demanded of those who wish to practice medicine in the state. Morally, it is one of the same things, and the only principle we have to go upon is that we furnish adequate and proper protection to the people of the state of Colorado against incompetent men appearing as competent men in the profession, and in good standing.

**W. H. Crisp, Denver:** I believe that if this bill carried no provision for payment by a member of the profession for being registered, every man with a fairly decent professional standing would support it without quibble. The "high moral ground" of the objection to registration is the two dollars a year. Now that is a pretty small sum for most physicians to pay, even if they are paying it as an act of benevolence to the public. They have paid a great many sums in that way in the last two or three years and did not kick very much about it; but while theoretically this law is aimed principally at the protection of the public, don't forget also that it does protect you; that you are also serving your own selfish interests as well as the public interests, in passing the bill. Such a law is worth a good deal more than two dollars a year from each one of you, and I fail to see why that should be a sufficient ground for refusing to support the bill. As a matter of fact,

it would be in the public interest if no peddler had to pay a license fee, because it would be much easier for peddlers to go around and distribute their goods without let or hindrance whenever they found they could sell something to the public cheaply, where the public wanted it. But the peddler has to pay the license fee. Why? Because it is a general principle in a case of this kind that the individual who has the license shall be charged with the cost of administering the law. Theoretically we should not have to pay anything for the narcotic license. I appreciate that the recent increase in cost of the charge has created a good deal of ill feeling, and I believe it is unjust because the public is entirely the party that is being protected and not the physician, and therefore the public should pay the cost; yet you will always find great difficulty in dealing with a matter of this sort on that basis, and the easy way, always, to put such a law into effect is to charge a license fee. Personally I should be willing to pay more than two dollars to have this registration law put through if it did not benefit me at all, merely to have it as a desirable public measure.

**C. D. Spivak, Denver:** I think that any work undertaken at the present time must be from a new standpoint, worked out throughout the world, and it is from this standpoint that any public act undertaken by a society or individual has to be looked after. I am simply daffy on statistics, and I would like that every act of every individual in the whole world could be recorded, and the movements of all professions from one city to another should be traced. Such data are of great importance, as many who have looked into the work of statistics will testify. This is perfectly right, and I therefore agree that there should be a way of getting at the statistical side of the movement of physicians no matter to whatever school they belong. I should like to have the Homeopaths registered and know how many there are left after so many years of fighting them. I should like to know how many Christian Scientists are in this country after so many years of ridicule which has been heaped upon them. Statistics would teach us many, many good and useful lessons. But I object to the licensing and paying for it, no matter whether it is a peddler or a doctor. It reminds me of the time when I was in Russia and everyone had to take out a passport. They had the statistics all right, but I hated to go and register every time I came to a city or left my domicile, and had to pay for it. That is what I objected to. Don't introduce at the present time systems that smack of Czardom. We are now socializing things, we are now bringing ourselves together and working together, and therefore everybody has to carry on the work of the state. We are all engaged in helping one another, and therefore, you don't have to come to me and say, "You pay a few dollars because your interests are to be protected." It is the public interests that are to be protected. Neither the doctor, nor the barber, nor the peddler should be obliged to pay for their license.

**J. D. Gibson, Denver:** I for one think we are having enough licenses. I am not in favor of following Russia. I think we have taxes enough, and, as far as I am concerned, I am not hunting a chance to pay any more. I don't believe in making the medical profession more and more hide-bound, more and more of a labor organization, and more and more difficult for the physician generally to get in and stay in when he gets in. If a physician is out of practice a year or two and he goes



and brushes up with a post graduate course, I don't see why he is not entitled to just as much right to practice medicine as anybody else. I believe when a man gets a diploma and has spent three or four or five years, and the best years of his life in studying medicine, it is not right to stay awake at night studying up schemes to ostracize him and keep him from practicing medicine and hedge him around and put him under the burden of helping the people. We are all helping the people. Every state organization has for its purpose to help the people. Why? We are building up a strong organization and making more proficient the medical profession. Does licensing do it? Do these license fees do it? Do we all like to go down and pay our income tax? I don't. Why do we want to pay any more? What good are we going to get by paying more taxes and having to go down here and register every time we turn around, as the Doctor says like they do in Russia, in France, in Germany? Is that going to make the profession any better? I say not, and I believe we are getting along pretty well as it is, and I think we would better let well enough alone.

**F. R. Spencer, Boulder:** For fear the speaker who has just preceded me has misunderstood the intent of this, I should like to make a few remarks. It is not the object to scheme and see how many men we can weed out of the medical profession. We need good physicians, and we need plenty of them. You all know we are graduating fewer medical students all over the country than we did ten years ago, but we are graduating better men. We want better physicians, and we are going to have them, but we do want to keep professional abortionists from going from one state to another and "getting away with it." At present they are "getting away with it"; they are "putting one over" on us. If you were on the State Board of Medical Examiners for a short time you would realize this and know what this means. This law will not work a hardship; it will be one of the best laws we can possibly have, and I believe after it has been working for a few years you will all heartily approve of it. Any man who has been out of practice five or six years finds it rather difficult to get back into practice, even though he is comparatively young. Any physician who has been out of practice for a few years and wants to take it up again, can get back. We have had many physicians who have had to give up their practice for a few years until they regained their health, but they are willing to go away and take a postgraduate course. This law will not keep them from taking up practice again; it is simply a means of knowing what they are doing and where they are located. It will work a hardship only on some of the quacks, and especially the professional abortionists.

In order to bring this to a focus, I would like to make a motion that it is the sense of this meeting that this be referred to the legislative committee of the house of delegates with power to act and make their recommendations as they see fit. I hope this won't fall by the wayside, because Dr. Strickler knows better than anyone else on the board what we need; he has given it time and thought, and occasionally he has been accused unjustly. A member of the house of representatives, and a good friend of mine, came into the office the other day and said Dr. Strickler had not given a man a square deal. "What can you do for him?" He said he wanted to come before the board Tuesday afternoon. He did not come, and when he found this physician was a professional abortionist, and had been for a period of years, he did not have anything more to say. I do not believe

some of you would oppose this if you really understood the intent of it.

**Dr. Gibson:** As a matter of personal privilege, I should like to say that I do not want to cast any reflection on the state board, because I think we have the finest board in the world; I admire them in every sense of the word. I think they are liberal, and I would not want to cast one aspersion on one member of the board for anything in the world.

**Hubert Work, Pueblo:** To relieve a little of the confusion which seems to exist: The fundamental purpose of taxation is to raise funds to execute the law. I don't know what amount is in the minds of the board to suggest for an assessment on medical men; I assume there are about two thousand physicians in this state. The sum of two dollars was suggested as a registration fee. That will gather into the treasury of the State Board of Medical Examiners some \$4,000. I would like to ask if it is necessary to raise this sum of \$4,000 to enable the State Board of Medical Examiners to operate this law, or if they cannot do it with the present clerical force without additional help? The fee of two dollars per man, or four thousand dollars, gathered into the treasury of the State Board of Medical Examiners, means two dollars to each practitioner. The county clerk's fee of fifty cents for himself will make a \$2.50 license fee each year for each member. I would like to ask Dr. Strickler to advise us, when he closes, if the sum suggested is a minimum total?

**George A. Boyd, Colorado Springs:** This is one of those measures where I always find myself embarrassed because its purpose is right but its procedure is wrong. The ethics of the problem Dr. Elder has carefully thought out and presented with much force and earnestness. What we want to do is to see to it that the men who assume the responsibility of the practice of medicine are prepared to adequately meet those responsibilities. The final accomplishment of this purpose must rest upon those most concerned, the public, upon its intelligence and its will. In a democratic form of government, if public intelligence permits its health to be intrusted to the incompetent, we help the public but little by trying to forge beyond its intelligence and demand by securing a statute which is sustained by our will and our personal expenditure. At the same time we antagonize that part of the public that does not understand the real reasons for such provisions and judges us by its own standards and sees selfish purposes in our voluntarily incurred expenses, which the incompetent exploiters of medicine turn to their advantage; and say what we will, we cannot escape the appearance of doing these things for our own protection.

We will make progress more rapidly by instituting some logical program of educating the public to demanding one standard of qualification for every citizen who assumes the responsibilities inherent in the practice of medicine. The reasons for this are so abundant and their appeal to common sense so powerful that should we rid ourselves of all appearances of selfishness, our cause would more quickly and vigorously prosper.

**W. H. Swan, Colorado Springs:** I think the discussion has gone on long enough, and it seems to me that Dr. Boyd has given the keynote in his remarks. The purpose of this is right, and the State Board of Medical Examiners are entrusted with the execution or the administration of this law, or seeing that it is administered properly. I think the public should pay for its protection, and I consider it is a matter of protection of the public. I think we owe it to the State Board of Med-



ical Examiners to help them along in the matter, and while, personally, I think the public should pay for it, I think it is our duty to bring the thing about and to support such a measure.

**Dr. Strickler (closing):** Dr. Elder wanted me to answer the statement he made, and I shall attempt to do so. I agree with him in the main. I believe legislation in the interest of public health should come from the people, and that is where it belongs. If, on the other hand, Dr. Elder can show a single state in the Union in which it has come from the people, I would like to copy after them. Unfortunately the physicians have always been and are now the sponsors for matters of public health all over the United States. In the second place, I believe that the money to finance the State Board of Medical Examiners should come from an appropriation of the state. I believe this just as much as Dr. Elder believes it, but those of you who have had occasion to go before the Legislature and ask for funds for any matter in relation to public health affairs know that you get nowhere. The legislator thinks that this is our bill, though I believe just as firmly as Dr. Elder on the proposition that this is not our bill. It is an effort on the part of the medical profession to take care of public health affairs in the state of Colorado as regards licensing. It is not what we wish it might be, it is not what we have attempted to make it, it does not reach the desired standard. Unfortunately, it is as much as we have been able to accomplish before a Legislature which is antagonistic because of misapprehension of the facts. I don't know why it is. I don't know why the laymen have so little use for the doctor, their family physicians excepted. It has been one of the sad things to me to think that it is true, but it is. I doubt whether there is a man in the room who would be seriously affected if he were required to register annually, but unless you register annually we cannot catch the people we are after. We are after the undesirable people who are practicing without a license, and they are increasing in number; it is the criminal. Every law has to be made to protect the law-abiding from the criminal; laws are not made to punish men who are inclined to do right; medical practice acts are passed to prevent wrongdoing by the incompetent and maliciously inclined.

Now your board is charged with certain things to do, and one of them is to assist the district attorneys in the various counties to prosecute cases, or to prosecute doctors that are practicing without a license and for other crimes and misdemeanors. If the State Society will vote that in its opinion it is not the function of the State Board of Medical Examiners, and will relieve us of this function, nobody will be happier than we; but, briefly, I believe it our duty under the law to see that these people who are so practicing medicine in the state should be prosecuted, and that those who are doing criminal practice should be prosecuted. There is not a district attorney that I know of in the state who of his own initiative will prosecute under the medical practice act, and it is sometimes difficult with all the influence we can bring to bear upon him to have him try cases of crime against public health. We have to furnish the evidence and stick after him. It takes money to do this.

I want to answer Dr. Work as to why we ask two dollars registration fee. As nearly as I can estimate, taking care of the annual records, looking after the necessary correspondence, printing and mailing the lists of registered doctors to the physicians of the state will cost at least \$2,000 a year. This would leave approximately \$2,000 for

gathering information and assisting in prosecutions. I do not consider that will begin to take care of it in the first year. I think after a time it will, but we cannot get a man for \$2,000 and pay his expenses to go into different sections of the country in looking up cases for presentation to the district attorney. I want to say in addition, the average district attorney does not try these cases with any force at all; he does not know the finer points in the law, which is essential to successful prosecutions, and it is important that we furnish some one who is familiar with the law, all of which requires funds at our disposal. I at first hesitated when I thought of asking a man to pay this registration fee, but when you come to think of it, it is the better men who have to pay for the administration of all laws against crime of any character.

## FRACTURE OF THE TIBIAL SPINE.\*

### Report of Cases With Radiographic Findings and Bibliography.

S. FOSDICK JONES, M.D., F.A.C.S., Denver.

Fracture of the tibial spine is of unusual rarity; the literature upon the subject is, therefore, meager and but comparatively few cases have been reported.

In this paper the writer will review the bibliography and record the case that has come under his care, and also report the findings of six similar cases occurring in the private practice of his colleagues, to whom he is greatly indebted for allowing him to include their cases in this monograph.

#### A Review of the Literature.

Up to the year 1873 but three cases are to be found in surgical annals describing tibial spine fractures, one reported by Dittel<sup>1</sup>, a second by Poncet<sup>2</sup>, and a third which was admitted to the University College Hospital of London<sup>3</sup> in 1873. In each of these cases the fracture was not recognized until after amputation or at postmortem examination.

Sir Richman Godlee in 1888 reports the pathological findings in a case of Erichson, who had amputated the leg for a severe injury.

In the *Annals of Surgery* for 1907<sup>4</sup> one finds a most interesting article by J. Hogarth Pringle, reporting two cases of avulsion of the spine of the tibia coming under his observation.

\*Read at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1919.

The first case occurred in a man of thirty-six years who had sustained a severe blow on the outer aspect of the left knee joint from a shaft of a cart; twelve days after this accident the knee joint was opened and was found to contain blood and fluid. The anterior crucial ligament, whose bone insertion was still intact, had been torn off the tibia and the spine of the tibia had been fractured. At the time of operation the tibial spine was sutured and the wound closed. This patient made a good recovery, with no impairment as to joint function. The second case of Pringle's was observed in a man who gave the history of having been injured several months previous to securing surgical aid. This injury to the knee was incurred while playing football. Upon examination at the time of operation it was found that the anterior crucial ligaments had been torn from their femoral insertion, and they were sutured to the tissues of the external condyle. A satisfactory result, with excellent joint function, was obtained.

A careful perusal of the literature shows that Pringle's cases of avulsion of the tibial spine were the first to be reported in which operative interference had been undertaken.

In the British Journal of Surgery for 1913, Sir Robert Jones<sup>5</sup> contributes a very interesting and instructive article on "Rupture of the Crucial Ligaments of the Knee and Fracture of the Spine of the Tibia", reporting fourteen cases of tibial spine fractures.

Jones suggests the following classification for injuries of this type:

1. Avulsion of the tibial spine or its internal tubercle.
2. Fracture of the external tubercle of the spine.
3. Injury to the spine combined with fracture of a tuberosity of the tibia.

Kurlander<sup>6</sup>, in the Journal of Surgery, Gynecology and Obstetrics for February, 1915, adds one case to surgical annals occurring in a lad of nineteen years, who had sustained a complete transverse fracture of the tibial spine. He reports that the conservative treatment was followed and the limb immobilized in full extension for a period of six weeks. Following immobilization, ac-

tive and passive motion were instituted, the final result being a complete return to a normal range of motion.

Sever<sup>7</sup>, in 1916, reports one case occurring in a man of fifty-nine years, who sustained a fracture through the external condyle of the head of the tibia which extended into the knee joint, causing a moderate downward and outward displacement. "The spine of the tibia had apparently been involved in this fracture and presented some evidence of callus formation and displacement." Sever adds that it is of interest to note that in this case there was no limitation of full extension of the leg on the thigh which might be expected from the x-ray findings which showed such marked changes and callus formation.

S. Alwyn Smith<sup>8</sup>, in the British Journal of Surgery for 1918, in an article entitled, "Injuries to the Crucial Ligaments," adds one case of avulsion of the tibial spine of six months' standing. The patient was an officer in the British army, who, in May, 1917, injured the left knee by falling into a shell hole. Immediately following this injury the knee was fixed and he could neither flex nor extend the leg on the thigh. He suffered excruciating pain, accompanied with marked swelling of the knee joint. After two days spent in a C. C. S. he was sent to a base hospital, where the diagnosis was made of displacement of the internal semilunar cartilage, and an operation for the removal of this cartilage was performed in June, 1917. Owing to continued disability after four months and inability to extend the knee, full extension being limited to 25°, a skiagraph taken in November, 1917, showed a fracture of the inner tubercle of the spine of the tibia, with new bone formation.

An operation was performed and the knee joint was opened through the split-patellar route. The excess bone on the anterior portion of the tibial spine was chiseled away and the anterior crucial ligament was found to be separated from the tibia and a few fragments of bone remained attached to it.



After removal of the callus at the site of the fracture the knee could be fully extended and the wound was closed. Complete immobilization in full extension was continued for twelve weeks after the operation. Smith, in his report, adds "that the knee now lacks but  $15^{\circ}$  of full extension and that the limitation of flexion is improving, and that there is no joint laxity".

These injuries of the knee joint resulting in fracture of the tibial spine with or without rupture of the crucial ligaments are caused by direct violence. The trauma is always severe, occurring with the knee semiflexed and the tibia abducted and internally rotated. Naturally the entire strain is placed on the anterior crucial ligaments which are either stretched or ruptured, or the tibial spine is fractured.

In this paper the writer is considering only cases of tibial spine avulsion, so that indirect violence resulting in injury to the crucial ligaments alone will not be considered. In these fractures the internal semilunar cartilage usually escapes injury. The accompanying swelling which occurs often within a few hours after these injuries is usually very great and the pain excruciating, the patient being unable to fully extend the knee and the degree of flexion varying from  $15^{\circ}$  to  $35^{\circ}$ . With the absorption of the fluid, bony crepitation can sometimes be felt, as in the writer's case, but this is not at all a constant sign. One can state quite definitely that when the tibia can be brought forward on the femur, with the leg in full extension, the anterior crucial ligament is ruptured. I have found no mention of rupture of the posterior crucial ligament alone in the surgical literature upon this subject. On a purely theoretical basis the one symptom of rupture of the posterior crucial ligament alone would be the possibility of displacing backward the tibia on the lower end of the femur with the knee in flexion.

The diagnosis of these avulsions of the tibial spine, accompanied as they may be with rupture of the crucial ligaments, is often difficult, and in many instances a definite opinion can only be reached by having

these cases carefully skiagraphed. In cases of severe joint injury, accompanied with a large effusion of blood or fluid into the knee joint and attended with extreme pain, one should always suspect a tibial spine fracture either with or without rupture of the crucial ligaments. X-ray plates, which should always be taken in this type of injury, will demonstrate the lesion if it exists.

### Treatment.

The treatment can be considered under two headings: the operative and nonoperative.

As I have said before, J. Hogarth Pringle was the first surgeon to advocate operative interference. He advised the suturing of these crucial ligaments, and also of the fractured spine to the tibia and closing of the wound without drainage, followed by complete immobilization with the knee in extension.

The opening of the knee joint by the split-patellar route is recommended by Robert Jones in those cases of tibial avulsion in which full extension is not possible and disability exists, accompanied by pain, effusion into the joint and stiffness. Jones makes "an incision starting an inch above the patella and extending down to almost the tuberosity of the tibia. The patella is sawed vertically and its ligament split. The segments of the patella are separated to the border of the condyles. The fat behind the patella is removed, when an excellent view may be had of the spine and the anterior crucial ligament. Any obstructive mass is removed and the knee is straightened. The ligament of the patella, the aponeurosis and the quadriceps extensor are stitched. No wire is used for fixing the bone." Jones states that the conservative treatment in those cases that are seen early and in which no bone blocking prevents full extension gives excellent results following complete immobilization for two months.

The conservative nonoperative management promises most gratifying results and should always be resorted to if the case is seen soon after the original injury. For the first forty-eight hours a simple ham splint and ice bag will enable the patient to rest

more comfortably, and at the end of that period the knee should be manipulated until full extension is obtained and then a thorough immobilizing splint, preferably of plaster of paris, applied. This splint can be re-applied at the end of two or three weeks to insure more complete fixation, but should not be entirely removed until the end of the eighth or tenth week. Instead of plaster of paris, some surgeons prefer to use the double upright or skeleton splint or the Thomas knee splint. At the expiration of the eight or ten weeks, massage and passive motion should be begun and continued daily for several weeks.

In conclusion may I not emphasize the facts that more thorough and complete immobilization following fractures of the tibial spine is necessary, and that more prolonged fixation covering a period of from eight to ten weeks should be resorted to before active motion is undertaken.

#### The Writer's Case.

Mr. X., a strong, athletic, muscular man of forty-seven years, met with a severe injury to the left knee. The accident occurred on June 6, 1919, while he was placing his motor car in the garage. He was struck on the inner surface of the left knee, the knee being caught between the door of the garage and the forward bumper of the car.

He suffered excruciating pain following the accident and was unable to flex or extend the leg on the thigh. The skin at the point of the injury was not abraded, but there was marked ecchymosis extending from the knee to the ankle. Within an hour the knee joint became greatly distended with fluid and the joint was flexed at an angle of about 30°. He was seen by his family physician, Dr. C. E. Edson, within two hours after the injury, and a partially immobilizing dressing and an ice bag were applied. At the end of twenty-four hours the joint was greatly distended with fluid and the circumference of the knee measured two inches larger than that of the unaffected knee. The extreme pain continued for a period of five days and then became greatly lessened.

Through the kindness of Dr. Edson the

patient was referred to my care on June 13th, and at the time of my examination the knee joint presented a boggy swelling with a large effusion into the joint, involving the suprapatellar pouch. The knee was one and one-fourth inches larger in girth than its fellow. Active motion was extremely painful and the joint was flexed at an angle of 25°. On palpation the most painful area was over the internal tuberosity of the tibia. Upon motion of the knee joint a distinct crepitation was elicited, but there was no backward movement of the tibia on the femur when the leg was extended.

A skiagraph showed an oblique fracture of the tibial spine and the upper fragment displaced backward.

The following day the leg was forcibly extended and brought to an angle of 175°, and an immobilizing plaster of paris dressing applied extending from the groin to the foot. The limb was kept elevated and absolute rest in bed was insisted upon. At the end of two weeks the pain had disappeared and a new plaster of paris dressing was applied, with full extension of the knee. At this time there still remained a small amount of effusion into the knee joint. Complete fixation was continued until the end of the ninth week, and not until then were massage and passive motion begun. The range of motion has gradually increased, and at the present time the patient is walking with the use of a cane. Extension is now 180° and flexion is accomplished to an angle of 95°. There is no lateral mobility of the knee joint, and no displacement backward of the tibia, indicating that the crucial ligaments had not been ruptured at the time of injury.

The patient is still under treatment and is having daily massage, with the result that there is an increasing range of joint motion.

#### Skiagraphs.

No. 1. Case of Dr. Jones: The x-ray shows an oblique fracture of the tibial



spine, with a separation of the fragments of about one-eighth of an inch.

No. 2. Case of Dr. Pierce: This case occurred in a soldier and was first seen by Dr. Pierce of the U. S. P. H. S. several months after the original injury. The diagnosis had not been made up to the time of his examination by Dr. Pierce. The x-ray shows an oblique fracture of the tibial spine.

No. 3. Case of Dr. Pothuisje: The x-ray shows an oblique fracture of the spine of the tibia, with a marked displacement upward and backward and separation of the fragments.

No. 4. Case of Dr. Lemon: The x-ray shows an oblique fracture of the tibial spine.

No. 5. Case of Dr. Dale Craig: The x-ray shows a sagittal fracture between the tubercles of the tibial spine, with no displacement.

No. 6. Case of Dr. G. B. Packard: The x-ray shows a transverse fracture of the tibial spine, with also an old injury to the internal tuberosity of the tibia. This case was not seen by Dr. Packard until several months after the original trauma.

No. 7. Case of Dr. Eichberg: The x-ray findings show a fracture of the external spine of the tibia. The fracture is oblique.

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#### DISCUSSION.

G. B. Packard, Denver: The subject of Dr. Jones' paper is a very important one at this time. Fracture of the tibial spine, as he remarks, is probably unrecognized in a great many instances,

and it may occur either with or without rupture of the crucial ligaments. Dr. Jones refers to cases where it occurs without any rupture. I have only had one case, and the diagnosis was made by the x-ray. The most important symptom, as the essayist remarks, is the inability to completely extend the leg. Adding to this the x-ray findings, we have a positive diagnosis. I most heartily endorse the remarks of Dr. Jones in regard to treatment. I believe in the cases where people get good, complete extension, and with complete fixation, in eight to ten weeks we get a good functional result. I believe also that a great many of these protracted cases of disability following knee joint injuries are many times due to a fracture of the spine, or rupture of the crucial ligaments, and, as a rule, these cases probably have not been immobilized long enough, so that in any of these cases of rupture of the crucial ligaments, or the lateral ligaments, or displacement of the semilunar cartilages, a long period of thorough immobilization, I believe, is always indicated. Of course, where you are unable, as the doctor has remarked, to completely extend the leg, then an operation is needed for the removal of the obstruction. I think this is a very important subject at this time, because I believe these cases of injury to the knee are in a great many instances unrecognized.

S. B. Childs, Denver: It is difficult to add anything of special interest to the remarks made by Dr. Packard, and Dr. Jones has presented this subject so thoroughly to you that but little can be added.

I shall briefly describe this type of injury as it has impressed me at the time of the roentgenological examination. The region of the knee joint is much swollen, the knee is markedly flexed, and the patient complains of acute pain upon any attempt to move the joint. In other words, all the symptoms produced by the ordinary injuries to the knee joint are greatly exaggerated. In addition to the appearance of the knee, the patient is either brought to the office upon a stretcher or we are requested to make the examination at the patient's home.

The first case of fracture of the tibial spine that I detected was in 1914, my attention having been called to this injury by the paper of Sir Robert Jones of Liverpool, which was published a short time previous to that date. Since then I have demonstrated a fracture of the tibial spine in eight cases, seven of them having been reported to you by Dr. Jones today.

The seriousness of this injury as far as good functional results are concerned, when the fracture has not been detected, warrants examination by the x-ray in every case of injury to the knee joint, and when this is done I am sure that many more cases will be found in the literature than have been reported up to this time.

Dr. Jones (closing): There is just one point which I wish to speak of in closing this discussion, and that is the operative management in these cases of tibial spine fractures of the knee joint. Sir Robert Jones, in a letter to me of recent date, says that in those cases of avulsion of the tibial spine which cannot be reduced by manipulation he has found that the knee joint can be best exposed by the split-patellar incision. The length of the incision should be carried upward vertically, three or four inches above the superior border of the patella, thus giving an excellent exposure of the knee joint.

Following the operative management the leg and thigh should be completely immobilized in a long plaster of paris dressing, extending from the

malleoli to the groin with the leg in full extension. Immobilizing splints should be worn for at least ten weeks before active motion of the knee joint is allowed.

## MEDICAL AIDS TO SURGICAL CURES.

WALTER MARSHALL DAKE, M.D.

It often happens that things which are apparently insignificant have a profound bearing on certain problems. It is thus with the aids furnished by internal medical treatment to the cure of surgical cases; and it has long been an opinion of mine that when a surgeon refuses to see good outside of his mechanical measures it is a failure which does not reflect lustre upon his grey matter, even though he may think it does.

Some two years ago I had referred to me a man of about twenty-four years who had suffered a complete fracture of both tibia and fibula of the right leg. The break had been caused by a blow from a broken belt revolving at a rather high speed. It was not a compound fracture. After going to Chicago, where for some twenty months he was under the care of Ochsner, Percy and Halstead, the bones still refused to unite. All the procedures known to the science and art of surgery were used on him. There were casts, splints, plates and grafts used, and when I first saw him there was as much motion in the middle of the lower leg as there was at either ankle or knee.

In going over his case I asked him what had been given him internally to produce an increase of osteoblasts and so to aid in the formation of bone. He said nothing, except for a little time he took thyroid extract by the instruction of one of the three. He had had many Wassermanns done, and all were negative.

After failing to find the slightest clinical evidence of there ever having been a specific infection, I prescribed tablets of thymus extract after each meal, and with each meal a half ounce of lime water in milk. I then had Dr. Cuthbert Powell see him, and a few days later Dr. Powell operated, opening the leg, removing a splint which had not united, except in the medullary canal of the lower part of the tibia so that it was made difficult of removal, freshened the ends of both bones,

put on a cast and put him to bed. The lime water and the thymus extract were steadfastly continued. On careful x-ray examination a few weeks later it was found that the fibula had united.

Dr. Powell was then called to the war and turned the case over to Dr. H. G. Wetherill and he, a few weeks later, operated, taking a graft from the left tibia and putting it skillfully in place in the right. At this operation Dr. P. A. Murphy assisted. From the first it was evident that this operation was to be successful. During all this time there had been no remission of the internal treatment, as the novelty of trying to induce union by the use of the thymus and the lime, combined with measures which had been thoroughly and skillfully used before, appealed to the young man and met with his earnest approval. The result was that the leg was saved, and I think that the internal treatment had much to do with the cure of the case, as otherwise there was nothing new tried in the way of surgery, and the reputation of the three eminent men in Chicago was such as to guarantee the scientific character of their work.

If, as some men who should know, claim, the thymus gland has to do with the process of growth, being largest when the processes of growth are most rapid, and smallest after full maturity has been attained, it seems as if there was at least a certain scientific right to use it and at the same time to use lime in quantity, that the formation of new bone might be stimulated and a cure aided. If the result does not justify the contention, one has, at least, the right to think it does, though results based on one or two cases are readily recognized as not overly trustworthy. Not being a surgeon, nor having in any way the slightest intention of ever invading that great field of practice, I feel a hesitancy in writing this article, but I believe that this case is worthy of being written up medically, as it may contain something which, though by no means new, may still be of value and help to others in similar cases.

624 Metropolitan Bldg.

ANNUAL MEETING AT GLENWOOD SPRINGS, SEPTEMBER 7, 8, 9.



## News Notes

Dr. G. F. Libby of Denver has returned from an extended visit in New England and has resumed his practice.

Dr. E. W. Lazzell, for the past two years on the staff of St. Elizabeth's Hospital, Washington, D. C., has returned to his old home, Denver, where he has resumed his practice, limited to nervous and mental diseases and psychoanalysis. He has temporary quarters at 530 Metropolitan building.

Dr. F. E. Prewitt, Nevada building, Denver, would like to share his offices with another doctor; there are three rooms fully furnished. Telephone Main 3536.

A comprehensive health association of Larimer county has been organized, to be known as the Larimer County Public Health Association. The membership is not at all confined to doctors, although many of them are represented, and the constitution provides that four physicians shall act on the executive committee. Arrangements are being made for the fitting out of a clinic in Fort Collins, and clinics will be established in Loveland and other points in the county as they are needed. Dr. C. P. Gillette of Fort Collins is president.

Dr. C. B. Van Zant returned to Denver from his Alaska trip July 29.

Dr. Edward T. Devine of New York was the guest of honor at a dinner given by the Denver Tuberculosis Society, July 29, and addressed that society on the need and opportunity for public health work in Colorado and Denver.

Dr. H. O. Dodge of Boulder has been appointed resident physician to the Soldiers' and Sailors' Home in Monte Vista and has assumed his new duties.

Dr. N. D. Wells of Fort Morgan has sent the following letter to the editor: "A man signing his name as J. P. McKeen is working through Colorado selling contracts with the Fleming Supply Co. of Kansas City, Mo., whereby the purchaser is supposed to get auto supplies at factory cost for the price of the contract, which is \$100 for five years' service. No such supply company exists and the man is a fraud. He works chiefly among doctors. Please publish this notice and see if the man cannot be apprehended \* \* \* the officials of Morgan county, Colorado, are holding a warrant for said McKeen, and anyone locating him should turn him over to officers."

Palestine's first medical journal, "Harefoah", (Medicine) has just made its appearance, published by the Jewish Medical Association of Palestine. The journal is a quarterly and its first issue is dedicated to the memory of the Jewish physicians and nurses who "lay down their lives in the years of upheaval in the Holy Land".

Failure of the endocrine glands to functionate properly is known to be the cause of a good many disorders that give the practitioner a lot of worry. These cases must be studied carefully and the endocrine gland preparations prescribed rationally. These preparations may be used singly or in combination. Of course it is useless to give any product that the patient does not need. The thing to do is decide what is lacking and specify the gland to supply the deficiency.

The glands used by the Armour Laboratory are selected with great care and are desiccated in vacuum ovens at a low temperature to insure their therapeutic active principles being uninjured.

## Medical Societies

### FREMONT COUNTY.

A social session of the **Fremont County Medical Society** was held in the Skyline pavilion at Cañon City, August 2, 1920, there being twenty-two members and guests present, each member having the privilege of inviting a lady guest.

A picnic lunch was served and afterwards there was a program which consisted of reminiscences and stories in which all members participated. The meeting developed some wonderful latent talent in the line of entertaining, and demonstrated that doctors carry remedies for the blues in their mental pill bags, or rather remedies in their mental pill bags for the blues. Owing to the absence of the president and vice president, the secretary presided and acted as toastmaster.

OTIS ORENDORFF, Secretary.

### SAN JUAN.

A meeting of the **San Juan Medical Society** was held in Durango on July 12, 1920. After a luncheon at the Strater hotel the meeting was called to order at 9 p. m.

Dr. H. A. Lingenfelter of Durango read a very interesting paper on Prolapse of the Kidney, which was discussed by Doctors McNeill, Darling and Burnett.

Dr. A. L. Burnett of Silverton read an interesting paper on Acute Lobar Pneumonia Treatment:

1. Definitions.
2. Prophylaxis.
3. General management of case, moving patients, hygienic measures.
4. Symptomatic treatment; so-called "specific medication"; digitalizing patient, probable merit of Petresco's; digitalis leaf treatment; serums, etc.

This paper was discussed by Doctors Darling, McNeill and Hutchinson, the latter of whom stated that in his experience most cases were other than pneumococcal infection. Dr. McNeill, after discussing the paper, cited some very interesting cases he had had in his practice.

The next meeting will be held in Durango on October 11. A program committee was appointed by the president, and those who are to read papers at that meeting are Dr. Nossaman of Pagosa Springs, Dr. Robbins of Durango, Dr. Booth of Aztec and Dr. Turrell of Durango.

F. W. E. HENKEL, Secretary.

## Book Reviews

**The Medical Clinics of North America.** Volume III, No. 4. (The Boston Number, January, 1920.) Octavo of 316 pages. Philadelphia and London: W. B. Saunders Company, 1920. Published Bi-Monthly. Price per year: Paper, \$10.00; cloth, \$14.00.

This number of the Medical Clinics contains contributions on important subjects having a wide scope. The greater part of the material presented was obtained from the medical service of the Massachusetts General Hospital. Dr. Henry A. Christian presents a unique case with an unusual syndrome of dyspituitarism. This is followed by a clinic on diabetes by Dr. Elliott P. Joslin, one who is most highly capable of discussing this subject. Dr. Wm. H. Robey deals with pericarditis and Dr. Edwin A. Locke presents an



obscure case of malignant disease of the lungs probably secondary to hypernephroma of the kidney. Dr. M. J. Rosenau handles the studies in food poisoning in an expert manner. A most instructive clinic on vascular hypertension is presented by Dr. James P. O'Hare and an equally enlightening one on gout by Dr. C. W. McClure. A series of interesting cases dealing especially with pernicious anemia is ably discussed by Dr. Geo. R. Minot. "Certain Types of Pneumonia and Serum Treatment" presented by Dr. Frederick T. Lord deserves praise. This is followed by an up-to-date clinic on electrocardiography by Dr. Paul D. White. Albuminuria in young men is discussed by Dr. Roger I. Lee and asthma, hay fever and allied conditions by Dr. Francis M. Rackemann. An exhaustive clinic on hyperthyroidism dealing especially with basal metabolism, by Dr. James H. Means, is most instructive. Dr. Fritz B. Talbot's presentation is of especial interest.

J. L. M.

**The Medical Clinics of North America.** Volume III, No. 5. (The Philadelphia Number, March, 1920.) Octavo of 325 pages. Philadelphia and London; W. B. Saunders Company, 1920. Published Bi-Monthly. Price per year: Paper, \$10.00; cloth, \$14.00.

In the March number of the Medical Clinics of North America there are seventeen clinics and one contribution by the leading internists of Philadelphia covering a wide range of subject matter. Dr. John B. Deaver opens this number with a contribution on chronic appendicitis, stating that the pathologic condition of the appendix bears no constant relationship to the length of time that the symptoms of the disease have existed; therefor the medical men should never entertain that there is no immediate hurry in the given case.

An interesting series of clinics from the wards of the Jefferson Medical College contains a wealth of information. Dr. Martin Rehfuß's clinic on analysis of diseases of the gall bladder and ducts is presented in an expert manner. "Some Aspects of the Diagnosis and Treatment of Cholecystitis and Cholelithiasis" is ably handled by Dr. B. B. Vincent Lyon. The method of direct analysis of the duodeno-biliary tract will serve as a most valuable aid in diagnosis. Another series from the medical clinics of the University of Pennsylvania follows. Dr. Stengel presents the treatment of valvular disease before failure of compensation in a praiseworthy manner.

The reviewer has derived much pleasure and instruction from the reading and studying of these clinics.

J. L. M.

**The Surgical Clinics of Chicago.** Volume IV Number III (June, 1920). Octavo of 204 pages, 79 illustrations. Philadelphia and London; W. B. Saunders Company, 1920. Published bi-monthly. Price, per year, paper, \$12; cloth, \$16 net.

The June number of the Surgical Clinics of Chicago presents the usual varied assortment of cases and discussions, including some good, bad and indifferent. A perusal of these Clinics is always worth while for the occasional new point of technique or the discussion of some surgical condition.

Twenty-two cases are given. Kanavel has a thorough review of the subject of empyema with his choice of treatment in both acute and chronic conditions. David Straus takes up the subject of perforated gastric ulcer and describes his operation using the actual cautery. Alfred Strauss considers the whole subject of intussusception.

Bevan brings up some interesting points in the repair of the common bile duct. Peritoneal tuberculosis is discussed in all its phases by Eisen-drath. There are also cases that may interest the obstetrician and some for the nose and throat specialist.—G. B. P., Jr.

#### NEW AND NONOFFICIAL REMEDIES.

During June the following articles were accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in new and nonofficial remedies:

Abbott Laboratories: Benzyl Benzoate (Abbott); Elixir Benzyl Benzoate (Abbott); Tablets Benzyl Benzoate (Abbott).

Arlington Chemical Company—Pollen Extracts, Arlco: Aster, Birch, Cherry, Clover, Corn, Dahlia, Daisy, Dandelion, Dock, Elm, Goldenglow, Goldenrod, Hickory, June Grass, Locust, Maple, Narcissus, Oak, Orchard Grass, Poplar, Poppy, Red Top, Rose, Rye, Sunflower, Timothy, Walnut, Willow, Ragweed (*Ambrosia trifida*), Ragweed (*Ambrosia artemisiaefolia*).

Fritzsche Brothers, Inc.: Benzyl Benzoate (Fritzsche).

Gilliland Laboratories: Pertussis Bacillus Vaccine, Diphtheria Toxin-Antitoxin Mixture.

Heyden Chemical Works: Ichthynat.

Hynson, Westcott & Dunning: Whole Ovary—H. W. D.; Whole Ovary Tablets—H. W. D. 5 grains.

Lederle Antitoxin Laboratories: Antipneumococcus Serum (Polyvalent); Gonococcus Glycerol Vaccine; Pollen Antigen—Lederle (Fall type).

## REAL BARGAIN

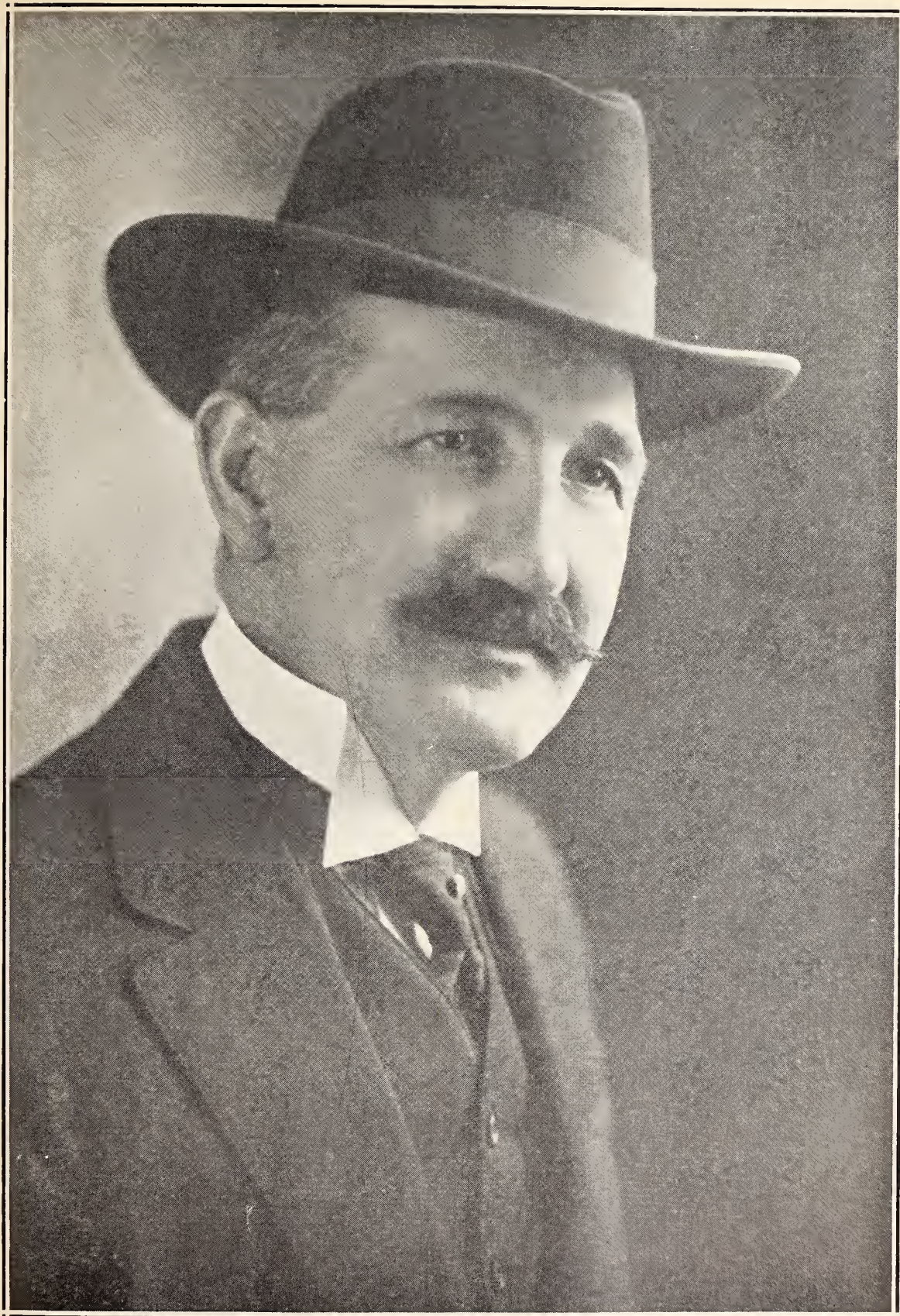
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H. A. SMITH, M. D.  
President-Elect of the Colorado State Medical Society, 1920-1921







# Colorado Medicine

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## Editorial Comment

### THE PRESIDENT-ELECT.

Dr. Harry A. Smith, Delta, Colorado, President-Elect of the Colorado State Medical Society, was born at St. Petersburg, Pa., July 5, 1872. He received his pre-medical education in the public schools of Pennsylvania and by tutor and travel. He entered the University of Pittsburgh in 1900 and graduated from the University of Louisville in 1904.

After one and one-half years of internship in oto-laryngological work, he located at Delta, Colorado, and limited his practice to ophthalmology and oto-laryngology.

Dr. Smith is a member of the Delta County Medical Society, Colorado State Medical Society, American Medical Association, Colorado Oto-Laryngological Society and American Academy of Ophthalmology and Oto-Laryngology. During the war he was president of the advisory board for District No. Eleven.

### THE GLENWOOD SPRINGS MEETING.

While the primary objects of the annual meetings of the Colorado State Medical Society are of a scientific and business character, nevertheless it has been the custom to have certain entertainment features incidental to the program, and many of those who attend have learned to look forward to those features with no little expectancy. It is probably safe to say that if an annual meeting were devoted entirely to business and science, many physicians would go home with a feeling that they had simply continued the humdrum which had been their lot

at home and would have no feeling of refreshment. The possibility of combining a vacation with the meeting probably draws a considerable number of attendants who must take a vacation, and in this way may do so without missing the annual meeting. The committee on scientific work was able to accept all the papers that were offered within the time limit and yet keep the program within such bounds as prevented crowding it and having to use extra time not previously scheduled, which is always aggravating to those who may have planned for recreation, as well as unfair to the author presenting his paper.

From all aspects, the meeting was successful and enjoyable, the program running smoothly and with dispatch under the businesslike direction of President Speneer.

The registration was 133 (unofficial), about one-seventh of the membership, which is good considering the distance of the meeting place from the larger centers. The smaller communities were well represented.

Of the new business transacted may be mentioned the abolition of the committee on Workmen's Compensation Act and the creation in its stead of a standing committee on Social Medicine, which in addition to performing the duties of the former committee shall have the broader scope of investigating all proposed social medicine plans, such as state health insurance laws, being "instructed and empowered to use such legitimate means to the end that the welfare of the profession be safeguarded". The members of the new committee are Drs. Epler, Shere, M. C. T. Love and Strickler.

The addresses of Dr. Victor C. Vaughan and Dr. George Crile were delivered in the evening following the banquet, and were both noteworthy. It is expected they will

appear in Colorado Medicine in due time. Dr. Joseph C. Beck's remarks and exhibition of slides showing the results of treatment of neoplasms of the head and neck were made remarkable by the unselfishness with which he showed his failures as well as his successes. He left with the auditor a feeling of partial hopelessness for the outcome of cancer treatment, which was relieved only by the knowledge that the present high mortality is due to neglect, and that educating the laity and jarring the profession on the matter of early recognition and early radical treatment of even the smallest malignant tumors may bring about in time what is considered a possibility by the students of the cancer problem—a death rate reduction to ten percent.

Sufficient spare time was available for the recreational features provided, consisting of automobile trips, horseback riding, golf, bathing, dancing and (for the ladies) cards. If there floated around any rumors about card games in the wee sma' hours of which the ladies knew not, the editor's ears were deaf to them. The famous Glenwood pool and cave baths were "wide open" and as to that kind of liquid the lid was off. Dr. W. W. Crook and his co-workers who did so much to add to the meeting by these entertainment provisions have and deserve the earnest thanks of those who attended.

It should be borne in mind that while this was the fiftieth annual meeting, the society is only forty-nine years old and that the next annual meeting, which is to be held at Pueblo, will mark its fiftieth anniversary.

### **PROPOSED LEGISLATION WHICH CONCERNS THE MEDICAL PROFESSION.**

At the state meeting a lengthy and important report was submitted by the committee on public policy and legislation which will appear in the proceedings of the house of delegates in the October issue of Colorado Medicine. Inasmuch as the election is not far off it may be well to recapitulate at this time these measures together with the committee's recommendations:

1. Psychopathic hospital appropriation bill, a measure initiated by members of this society: The committee recommends and

urges a definitely organized effort in this society to present the measure favorably to voters in all parts of the state.

2. An initiated amendment to the constitution affording authority to the legislature to increase the mill-tax available for the support of the state educational institutions: Support of the society recommended.

3. An initiated chiropractic bill creating a board of chiropractic examiners: (See Dr. Strickler's report, following.) The committee recommends in effect that the society use its influence in opposition to the measure on the basis that the only excuse for any licensure must be in the interest of public health, and the duplication of boards weakens its purpose.

4. A bill to protect educational degrees: The committee recommends the endorsement of such a measure to be presented to the next legislature.

It should be borne in mind that the first three measures are initiated ones and that work on them should be done with the voters, since the legislature has no power to act on initiated bills.

### **THE COLORADO STATE BOARD OF CHIROPRACTIC EXAMINERS.**

One of the initiated measures for consideration by the voters in the November election is a Bill to Establish a Board of Chiropractic Examiners. It is long and will doubtless be read by a very limited number of the voters and its import comprehended by few of these—knowledge of which two facts we believe responsible for initiating the measure in preference to having it considered by a legislative body where its merits and demerits could be discussed. In general it is a close copy of the medical practice act in everything except in matters concerning the licensure of chiropractors. It provides:

A. For the creation of a board of chiropractic examiners, which shall consist of three members, each of whom shall have been a resident of the state of Colorado for a period of at least a year prior to his appointment, and no two of whom shall be graduates of the same school or college of chiropractic.



B. For the licensure of all chiropractors who are now licensed by the State Board of Medical Examiners, and for all others who have been practicing in any one county of the state for a year prior to the date upon which the act shall take effect. This means all who have been practicing in violation of the medical practice act, irrespective of any educational qualifications, except that they must have graduated from a chartered chiropractic school.

C. Minimum educational requirements are the same as under the medical practice act, with the additional power to recognize licenses held in other states and the right to examine any applicant irrespective of educational credentials.

D. Power to license after examination in anatomy, symptomatology, hygiene, nerve tracing, diagnostics, chiropractic orthopedia and the principles of chiropractic and adjusting as taught by chiropractic schools and colleges. (They omit physiology, chemistry, toxicology, pathology, surgery and obstetrics.)

E. Definition of Chiropractic: "The adjustment of any displaced segment of the vertebral column or any tissue related thereto for the purpose of removing occlusion of nerve stimulus or for the purpose of treating, removing or alleviating any injury, deformity or abnormality or morbid condition of a human being.

"A license to practice chiropractic shall confer upon the licentiate the right to practice chiropractic within the state of Colorado, and in connection therewith to have all the rights and privileges and immunities by law extended to physicians and surgeons in this state, except that such license shall not authorize any holder thereof to practice obstetrics, perform surgical operations of any nature whatsoever, or to prescribe or give any medicines or drugs to be taken internally."

Under the present law, passed in 1915, in which the definition written by themselves was inserted the following appears:

"The term practice of chiropractic as used in this act is hereby defined to mean the treatment of disease or morbid conditions of human beings by palpation, nerve

tracing, and adjustment of vertebrae by hand.

"Such license shall not confer upon the licentiate the right to practice surgery or obstetrics, or to prescribe drugs or to administer anaesthetics." It is made a misdemeanor for any person holding a license to practice chiropractic to practice medicine otherwise than is included in the practice of chiropractic.

F. "Chiropractors shall observe and be subject to all state and municipal regulations relating to the control of contagious and infectious diseases, the signing of death certificates and any and all matters pertaining to public health and the making of reports to the proper health officers, the same as required of physicians and surgeons."

It will be noted that in addition to creating a separate board of examiners the measure provides for the licensure of all graduates of chiropractic schools who have been illegally practicing in this state for a year or more past; for the licensure of chiropractors from other states under less credentials than now required; for licensure by examination of any person who may apply without reference to the requirements of the school from which he graduated.

The definition of chiropractic under the medical practice act was written by the chiropractors in 1915 and inserted as written with the understanding that their practice should be limited to their definition, and it was so designated in the law. Under the initiated bill they provide that they shall have all the rights, privileges and immunities by law extended to physicians and surgeons in the state except that such license shall not authorize any holder thereof to practice obstetrics, perform surgical operations of any nature whatsoever, or to prescribe or give any drugs to be taken internally.

They shall be subject to all state and municipal regulations and sign death certificates, etc., just as physicians and surgeons.

Nothing to prevent their using electricity in all forms for the treatment of the ill or deformed; nothing to prevent the use of medicaments of any and all kinds for external treatment of disease; nothing to prevent the use of any and all forms of mechanical

devices to treat injuries and deformities, acute and chronic, infectious or otherwise; nothing in the act to offer any assurance of knowledge of disease based upon a study of those subjects, knowledge of which alone can justify the assumption of ability to make a diagnosis; no physiology, no pathology, no chemistry, much less biochemistry; no surgery, when their practice is wholly surgical both etymologically and practically.

When it is considered that conservation of public health is the only reason for licensure of anyone to practice the healing art it seems only reasonable that no one who does not show knowledge of disease and ability to recognize its common forms should be licensed by the state to treat the sick by any system. Ignorance of contagious and infectious diseases renders such individuals a direct menace to the public. Our efforts should be to raise the standards and limit the cultist to the teaching of his schools.

In the initiated measure provision is made for lowering chiropractors' standards and extending their privileges in practice. The need of an active campaign for reasonable standards in the interest of public health is urgent. Those who are asking for broader liberties are deeply interested from purely personal motives and will exert themselves to the limit, while with the better educated it is simply a matter of principle.

To establish multiple licensing boards is a grave mistake, which should be prevented if possible. There is no more need of two boards of licensure than two or more boards of health, or two or more boards of dentists, pharmacists, plumbers, barbers, etc.

The committee on public policy and legislation urges the members of the medical profession individually and collectively to do all in their power to protect the public from this vicious measure. In any event do not overlook the fact that this is an initiated measure and any work against it must be done with the people before the election. The legislature has no power to modify it.

DAVID A. STRICKLER, Chairman.

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## IS COLORADO THREATENED WITH A TYPHOID EPIDEMIC?

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From the number of typhoid fever cases

now prevalent in Denver and throughout the state, there is reason to fear an epidemic of larger extent than in former years at this season. If there is one disease whose mode of spread and methods of prevention have been well studied it is typhoid fever.

Its occurrence in a community is a reflection on the sanitation and state of civilization of the inhabitants. After our deplorable experience in the Spanish-American war, we took the lesson to heart so that in the last world conflict by proper preventive and prophylactic measures the incidence of this disease among our troops was practically negligible. Not alone our colleagues in the profession but our lay comrades in the recent struggle witnessed the benefits of a proper supervision of the water and food supplies, the isolation of the carriers and the universal vaccination against the typhoid bacillus.

With this enlightened public opinion to aid the fight against the disease, it is rather disappointing to find Colorado physicians viewing the possible approach of typhoid epidemic with apathy and apparent indifference.

The average practitioner is naturally busy in his own particular sphere on the therapeutic side and besides, single handed, he can do nothing in the preventive line. As to the boards of health, it has been well pointed out by the secretary of the Colorado State Board of Health at the last State Medical Convention that the appropriation made by our legislature barely suffices for clerk hire to register the vital statistics. In many of the municipalities facilities for investigating epidemics are no better.

The sanitary conditions in some of the mining camps with their primitive arrangement for water supply and sewage disposal would hardly bear the light of day.

Colorado, the playground of America, beckons the tourist to her wonderful scenery and lures him to her pine covered hills and rushing mountain streams. No provision, however, is made for even elementary disposal of the waste products of the visitor and many an Eberth bacillus finds his way to the innocent babbling brook of supposed purity to give rise later to infection in unsuspecting victims. Must we convince our



hard headed business men and legislators by financial figures what an industrial loss every case of typhoid fever represents? Shall we wait until the losses are so appalling and death has taken its great toll before an aroused public calls for deliverance? No wonder that the functions of the health officer and sanitarian are being taken away from physicians and given over to social service men!

What is the remedy? It is useless, of course, to speak of increased appropriations by the state while the legislature is not in session. The opportunity, however, is ripe for arousing an enlightened public opinion to the necessity of health conservation which will inevitably be reflected on the law givers. In the meantime, we must look, as in the past, to increased efforts on the part of our local health officers, aided by volunteers in the profession. The idealism and spirit of self-sacrifice so beautifully shown in the war may be utilized in the pursuit of peace with the more glorious consciousness of helping to save human lives. P. H.

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### NEARING THE END.

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The success which has thus far attended the efforts of the organized medical profession in this state, with reference to the psychopathic hospital bill, is so unprecedented as to stimulate ambition to its greatest extent. The last stroke implied is in the direction of educating the voter as to the meaning of the bill. It requires now but that the physician in discussing the political issues in the state, take opportunity to mention that the bill providing for the investigation and treatment of **acute curable** insane is not only humanitarian but economic in purpose; that it commends itself to every taxpayer. No one is in better position to know how badly such a provision is needed than the physician and therefore none better qualified to represent so noble a purpose.

The National Committee for Mental Hygiene has been so thoroughly interested in this needed project that Dr. Frankwood E. Williams, Assistant Medical Director, has been delegated to be in Denver the week of September 20th to aid the Colorado medical

profession in the accomplishment of its purpose.

Just explain the purpose to as many voters as possible and the Colorado Psychopathic Hospital will be an assured realization. M.

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### COLORADO'S EDUCATIONAL PROBLEM

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The era of high prices accompanying and outlasting the World war has not only brought to the individual most vexatious problems but has forced the educational institutions of the country to face squarely the alternative of securing larger funds for maintenance or of curtailing their work. This is especially true of the institutions of higher education. During the war the situation was met by the splendid and unselfish devotion of their faculties who saw the purchasing power of their incomes dwindling day by day, but stuck to their posts almost to a man, and who, in the face of diminishing purchasing power of supply budgets, struggled on with inadequate apparatus and in very many instances lengthened their hours of work by assuming additional courses needed for war purposes for which their schools could not afford additional instructors. Since the war ended greatly increased enrollments have accentuated rather than relieved this situation. This capitalization of the teacher's devotion to education cannot be much further prolonged, especially in view of the great and increasing demand, at far larger salaries, for scientific men in commercial pursuits. It is mathematically certain that, unless immediate relief be provided, education and especially higher education will receive a setback for years to come.

This crisis is not, of course, confined to Colorado; it is country-wide and its paramount importance has been generally recognized. Endowed institutions have sought to meet it by means of the remarkable series of drives which the past year has witnessed, and it is significant that these have been almost uniformly successful. State institutions can avoid retrogression and continue their useful growth only by favor of their respective legislatures, reflecting in turn the sentiment of the citizens they serve. Many

states have already voted greatly increased funds to their state schools; others will undoubtedly do so this winter, and those which do not will fall behind.

In Colorado the schools which can be thus relieved are the Agricultural College, the Teachers' College, the School of Mines, and the University of Colorado. At the present time the legislature would be unable to afford any adequate relief to these institutions owing to the fact that taxation is already near the constitutional limit of four mills. An amendment has accordingly been drawn for submission to popular vote at the coming election providing that the legislature may, in its discretion, levy sums up to one additional mill to be used solely for educational purposes. The passage of this measure will not of itself increase taxes one cent; it will simply give the legislature the power to afford relief so urgently needed. A few statistics from the University of Colorado may set forth this need. The university is operating on an income fixed in 1917, since when its enrollment has increased from 3,564 to 5,461, or 50%, while supply costs have increased 100% to 300%. The university has not been extravagant; the cost per student in a representative group of state universities in 1918 was \$325 per student; at the University of Colorado it was \$200. The Universities of Texas, Washington, Illinois, Iowa, Wisconsin, Ohio, Minnesota, California and Michigan pay professional salaries of from \$5,000 to \$6,250 and these are being increased; the maximum at the University of Colorado is \$3,500, with instructors' salaries as low as \$1,200. The per capita cost of higher education in Arizona, Kansas, Wisconsin, Michigan, North Dakota, South Dakota, Montana, Utah, Minnesota, Oregon and California ranges from \$1.08 to \$1.50; in Colorado it is 97 cents. Nor is Colorado overtaxed for all state enterprises in comparison with these states whose per capita taxation for all state purposes ranges from \$6.20 to \$14.94, while Colorado's per capita is \$5.82.

Educational opportunity has never been in greater demand nor its availability more vital to public welfare than today. Higher education in Colorado has been carried on most economically and today faces a crisis

which has already been met by many state and endowed institutions. It must be met here if such education is to go forward. The remedy lies in the hands of the voters of the state, but vigorous support must come from those educated members of the community, among whom physicians stand in the first rank, or the urgency of the need will not be appreciated and the remedy will fail of application. Let us not forget the wisdom of our fathers who wrote into the Ordinance of 1787 "Religion, morality, and knowledge being necessary to good government and the happiness of mankind, schools and the means of education shall forever be encouraged."

C. N. M.

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### THE CANCER PROBLEM.

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It may seem superfluous to recur to this subject time and again. Yet the unpleasant truth compels constant iteration and reiteration. We have too many sufferers from cancer who consult the surgeon too late to be saved. This applies not only to the poor and ignorant portion of our population but even to the well-to-do and the educated classes. We must also face the disturbing fact that some of our colleagues in the profession need enlightenment and continued admonition against temporizing with suspected malignancy.

Remembering that every person over forty is a potential victim and that, roughly, one out of ten will have it, the question is one fraught with importance to every physician and layman.

A hundred thousand lives are sacrificed yearly in the United States to this destroyer. A considerable percentage could be saved by early operation. There is only one remedy—publicity.

Propaganda has won the World war. The leaflets dropped by aeroplane were probably more effective than the leaden projectiles. The propaganda against tuberculosis carried on in the last two decades has diminished considerably the ravages of the white plague. The same is true of the safety first, child welfare and other life saving movements. Would that a tithe of the funds and energy now expended on the political campaign to find hair splitting distinctions



in platforms were diverted to the field of human conservation!

Publicity is the thing—both for the laity and the profession.

The American Society for the Control of Cancer, a national organization of men and women devoted to the battle against cancer, has been coöperating with the medical profession in holding cancer campaigns in all parts of the Union. Successful Cancer Weeks have been held in various communities with splendid results as shown by an awakened interest in the subject.

The State of Colorado should not fall behind in this laudable effort. It is proposed to hold a Cancer Week in the various cities and counties of this commonwealth some time in the fall. Clinics will be held in the hospitals touching on the scientific side of the subject, as regards early diagnosis and surgical treatments. It is hoped that all members of the profession will participate in these clinics as teachers and students.

For the laity, and this is the more important phase, popular lectures and lantern slide demonstrations will be held. Parent-teachers' associations, women's clubs, church organizations, labor unions, commercial associations, all form good soil for planting the seed of sound advice on the cancer question; nurses especially should be well informed on this subject.

If the physicians of Colorado will lend a hand to this movement they will be the means of saving many a human life.

P. H.

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## RADIATION TREATMENT OF CANCER.

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At the meeting of the American Surgical Association in St. Louis in May of this year the following resolution was unanimously adopted:

"That the president be authorized to appoint a committee to examine into and report upon the place of radium and the x-rays in the management of neoplasms".

The committee appointed by president Geo. E. Brewer is as follows: Dr. Geo. E. Armstrong, Montreal, Chairman; Dr. Robert B. Greenough, Boston, Secretary; Dr. Geo. W. Crile, Cleveland; Dr. J. M. T. Finney,

Baltimore; Dr. James A. Blake, New York; a very powerful committee.

Those who heard the address of Dr. Joseph C. Beck at the Glenwood Springs meeting of the Colorado State Medical Society were no doubt impressed with the statement of his experience in the use of radium and x-rays in the treatment of malignant tumors of the head and neck. It will be remembered that he stated that the place of radiation in these cases was as yet not a proven one, that his statistics so far showed equally good or better results with surgery alone than with surgery plus radiation, and that, yet, he believed in their use and strongly recommended radiation both preceding and following surgery as routine treatment.

In arriving at a correct valuation of any new measure in medicine, years of trial and very many cases are often required, and it is so with radiotherapy of cancer. Opposed to Dr. Beck's experience are the reports of a number of radiologists, such as Phaler of Philadelphia and Tyler of Omaha, in which they have cited many cases of what appear to be permanent cures of severe malignant conditions. Allowing for the favorable shading of results lent by overenthusiasm which obtains with some workers, nevertheless in a review of the literature on the subject it will be found that many reliable investigators give a much more hopeful outlook on radiation therapy than does Dr. Beck; and the sincerity of some of them can not be questioned. All of which serves to show that the situation is still chaotic, and the report of the investigating committee referred to will be awaited with great expectancy, especially since it is to take all the time needed to clear the atmosphere surrounding this subject and make the results of its work of permanent value.

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**Cosmetic Nostrums and Allied Preparations.** This is another of the propaganda pamphlets of the American Medical Association, which describes fraudulent preparations for the skin, fraudulent preparations for the hair, fraudulent deodorants and depilatories, etc. The price of the pamphlet is 15 cents, post paid, and it may be obtained from the Propaganda Department of the Journal of the American Medical Association, 535 North Dearborn Street, Chicago.

## *Original Articles*

### **GROUP MEDICINE OF THE PAST, PRESENT AND FUTURE.\***

**FRANK R. SPENCER, M.D.  
BOULDER.**

When you honored me, almost one year ago, by making me President-Elect of our State Medical Society I felt one of the most important things I could present to you would be "Group Medicine."

Each year for many years as I have viewed our professional work in perspective I have wondered what could be done to improve it; to raise its standards; and to increase its efficiency. The efficiency of general practice was greatly increased by "Special Medicine"; but even special medicine has its limitations. To offset this, "Group Medicine" seems to be the next step in the proper direction if we are to widen the scope of these limitations. While in the past it has been largely in its infancy, it should, at the present time, be fairly well established; so that we may safely say it has passed the experimental stage.

Any address on the subject of Group Medicine can hardly be complete without more than passing mention of the Mayo Clinic. On Tuesday, June 8th, I visited this wonderful institution in order that I might become more familiar with the details and working plans so effectively and efficiently carried out there. Hardly anyone who visits this clinic will have any difficulty in recognizing the fact that group medicine there is not an experiment; it is on such a firm foundation that it must endure, and must be the medicine of the present and the future.

Great men of all times who have been best able to look into the future and to visualize the needs of the future have usually been men who have had some great catastrophe which made them rise above their environment and meet the occasion. This Dr. William J. Mayo, his father and younger brother, Dr. Charles H. Mayo, certainly did in the

fall of 1884. That fall Rochester, Minn., was visited by a cyclone which made at least Dr. W. W. Mayo realize the necessity for adequate hospital facilities. It was the fall before Dr. William J. Mayo graduated from the medical department of the University of Michigan. The building of even a small hospital in the early eighties may very properly be said to be one of the most important steps in the lives of the two brothers, because it was the beginning of their important life work. While their first hospital was built by the Catholics and managed by the Sisters of Charity; and, while it was used largely as a city hospital by all of the physicians in Rochester, it has been gradually used more and more for the Mayo Clinic.

The building, equipment, organization and management of an up-to-date hospital was greatly aided by the Mayo brothers' father, and his reputation in Minnesota as an honorable, conscientious practitioner of medicine gave the hospital an excellent standing early which it might not otherwise have had. Even within the early professional career of the speaker the reputation of the Mayo Clinic did not extend to many states beyond Minnesota, although for a period of years before the public knew much about the Mayo Clinic many patients from the Dakotas and from Iowa were going to Rochester for at least their major general surgical operations. As the Clinic grew Dr. William J. Mayo and his father were greatly aided by the younger brother, Dr. Charles H. Mayo, Dr. Stinchfield, Dr. Graham, Dr. Plummer and later by Dr. Judd. I doubt if either of the Mayo brothers decided to form a group, but group medicine grew out of their hospital work and a thorough study of each and every patient, not by one physician, but by all of the physicians connected with the hospital, thus encouraging each and every physician to perfect himself in one or more of the specialties. This all emphasizes the importance, first, of specialization; and second, correlation of the findings in the different special departments.

Hence group medicine had its beginning with the Mayo brothers and their father, and theirs was undoubtedly the first group formed anywhere, so far as I have been able to determine.

\*Presidential address, delivered at the annual meeting of the Colorado State Medical Society, September 7, 8, 9, 1920.



The number of physicians at the Mayo Clinic has increased from time to time; the size of the hospital has increased; and the number of clinical buildings has been increased, so at the present time there are two hundred and thirty-three physicians, including interns, on the staff. When I was there, June 8th last, four hundred and thirteen new patients were admitted that day, which was the largest number of new patients they had received any one day in the history of the institution. With their well established clinic this number is a remarkable demonstration of what group medicine can do under the administrative leadership of Dr. William J. Mayo and his brother.

In the Mayo Clinic many of the physicians are on a salary, so the finances are well handled and this obviates the complicated bookkeeping necessary to see that each physician receives his percentage of the income. However, where groups are formed by physicians already well established in practice the question of salaries often can not be considered. Under the latter circumstances the division of the fees on the percentage basis is probably the best solution of the problem, each decide how the fees are to be divided letting the physician who first receives the case among the other physicians called in consultation, depending upon the amount of time each physician gives a case. Different groups have adopted different methods dependent largely upon local conditions, the details of which I shall not discuss at this time.

Dr. Joseph C. Beck, one of our honor guests, tells me that he and his brothers formed their group first in 1897. Eleven years later they decided not to have this group, but to work with the other physicians and specialists in Chicago in order that other physicians not in the group might not feel that they were apt to lose their case by having it sent through a definite group.

Other clinics along similar lines have been organized during the past five or ten years, and especially during the past five years. Doubtless more of these groups would be formed were it not for the antagonism among the physicians in the community who are not members of the group. Some of these groups have failed, as they probably

should, because the primary object has been, in a few instances, to eliminate competition; to gain all of the patients; and for other selfish reasons. However, other groups have been formed upon a broader basis, with increased efficiency as the chief object, and these have included the best physicians in the community, especially in smaller cities and towns, so that the element of friction has been eliminated. That more groups should be formed in each and every state I am firmly convinced, as I believe nothing will do so much to meet the growing demand for state medicine as proper medical and surgical groups. The rapidly increasing numbers of physicians in special practice often make it impossible for people of moderate means to pay the fees for repeated examinations by different specialists while their case is being properly studied and worked up. Under the group system this can be done for a much lower sum and with much greater efficiency than by the present system of referring patients from one specialist to another.

The Journal of the Indiana State Medical Association has the following to say:

"The present-day enthusiasm for group medicine is not difficult of explanation. Specialization, inevitable though it is, does mean decentralization of control over patients, does result in a lack of correlation of findings in many instances, and, worse still, frequently results in procedures instituted without adequate examination and observation. With but minor exceptions no surgical procedure should ever be undertaken without a previous thorough physical examination of the patient, which means at the hands either of the general practitioner or of the internist.

"Surgical calamities decrease proportionately as the number of such examinations increase. This statement questions the surgeon's ability to pass judgment on the heart, lungs, vascular, nervous and endocrine systems; but the surgeon can no more cover the internist's field adequately than the internist can qualify as a competent surgeon. And what has been said of the surgeon applies to the specialist generally. This is the difficulty 'group medicine' tries to solve and does solve when properly ap-

plied. It correlates the findings of the various specialists, stereoscopes their different views and centralizes the responsibility for the patient's physical welfare. If the necessary effort is made the same thing can be accomplished without resorting to the formation of groups, of course, and the pity is that it so seldom is done."

Those of us who had the honor of serving in a base hospital during the recent war certainly had occasion to utilize, to the fullest extent, the advantages of group medicine; because each hospital had a well organized staff, for each and every specialty, except obstetrics and gynecology. While there was, at times, some difficulty in co-ordinating all of the examinations, this was readily overcome if the medical officer had the ambition and would take the time to do so.

The criticism has also been offered that some of the men were inefficient, and so they were; but despite this and other disadvantages the experience gained by medical officers in base hospitals has done a great deal to strengthen the ideals of group medicine. I doubt if any other single thing, with the possible exception of state medicine, has done so much to further the cause of group medicine in the past decade as has the lesson learned from base hospital organization.

Let us consider for a moment the diseases which are more or less directly or indirectly related to diseases of the eyes, ears, nose and throat in order that we may see of what advantage the ophthalmologist and oto-laryngologist may be to the specialists of the other departments of medicine and surgery in the complete and thorough study of any case.

The following lists of special and general diseases, which may originate from any focus, or have their incidence in the eyes, ears, nose and throat, bring home to us the importance of ophthalmology, otology, rhinology, and laryngology to general medicine and the indirect problems which we must meet as consultants. This list of diseases emphasizes the fact that we are being drawn into more intimate relationship with internal medicine rather than away from it. One cannot be a good specialist without having his outlook on general medicine

broadened. His special study becomes the objective point to which he brings all correlated facts and differentiates them. As Grunwald has said, "Remember, we are first physicians and second specialists."

The diseases of the eye arising from foci in the naso-pharynx have been added to each year, until now the etiology of the following list is conceded. For example: Retrolbulbar neuritis from infection in the ethmoids and sphenoids. Acute edema of the lids and congestion of the conjunctiva from the ethmoids. Pain and photophobia from acute congestion in the anterior ethmoidal region. Iritis from a focus in the tonsils, teeth or sinuses. Blocking and infection of the tear duct from obstructions of the nasal end of the duct. Orbital cellulitis from the ethmoids. Optic atrophy from the pressure of tumors in the ethmoidal region. Ocular displacement and diplopia from pressure in the ethmoidal region, and the supposed connection of phlyctenulas keratitis with infected tonsils and adenoids.

The internist often wants the opinion of the ophthalmologist concerning angiosclerosis of the retinal vessels, especially in patients in whom he has found a kidney lesion or high blood pressure. For this reason the same internist may want to know the condition of the macula and of the vision in any patient suffering from nephritis. The ophthalmologist, in turn, often has an opportunity to refer such patients to a competent internist when the oculist happens to be the first one consulted for a routine eye examination and discovers the nephritic neuroretinitis and the angiosclerosis of the retinal vessels.

The paling of the temporal half of the disc in multiple sclerosis, locomotor ataxia and progressive paralysis of the insane likewise enables the ophthalmologist to help the internist or the neurologist in completing the diagnosis. The ophthalmologist can further help the internist and the neurologist by examining for hippus iridis in multiple sclerosis, paralysis or paresis of the external rectus and the reaction of the pupils in locomotor ataxia; also by examining for paresis or paralysis of the extrinsic muscles of the eye, which, like absence of the patellar re-



flex, is so often found as an early tabetic or pretabetic symptom.

Focal infection, while not by any means the last word in the diagnosis, treatment and proper management of cases which we formerly designated as "rheumatism", has done much to demonstrate the wisdom of "teamwork", and to enable one specialist to help another in the proper study of cases. Here the ophthalmologist may help the internist, as he may be the first one to discover a secondary focus of infection in the eye. Brown and Iron's work has demonstrated the prominence of focal infection as the etiology in many cases of iritis. This is especially apt to be the case in tuberculosis of the retinal vessels in which tuberculosis of the other organs of the body is almost invariably latent and may be extremely difficult to demonstrate at all. Tuberculosis of any of the tissues of the eye may be present without the disease being demonstrable elsewhere in the body. Von Hippel's case, in which an eye went from bad to worse and was finally lost, is now a classical illustration of our occasional inability to obtain a focal, a local or a general reaction to tuberculin. For after the eye had been enucleated it was found to be full of tuberculous debris, and yet the patient had not reacted to a 5 mg. dose of tuberculin.

In infections of focal origin of any of the tissues of the eye, especially iritis, the primary focus may not always be so easily demonstrable, but can usually be demonstrated in the teeth, sinuses, tonsils, gall bladder, appendix, gastrointestinal tract, in the female pelvis or in the genitourinary tract of the male. Neuropathic keratitis is more apt to be due to focal infection than to malaria.

The ophthalmologist may also be of great help to the neurologist and internist in searching for a cause of headaches, because we know how frequently refractive errors are responsible for headaches, hysteria, general nervous debility, inaptitude for work and failure of school children to properly apply themselves to their task. Sluder's "lower half headaches" often are first referred to the eye; these are not of ocular origin, but of nasal origin.

Syphilis, like tuberculosis, is so protean in its manifestations that it may, whether

treated or untreated, first manifest itself either as a secondary or tertiary lesion in the eyes, ears, nose or throat, and the ophthalmologist or oto-laryngologist may be the first one to discover the lesion, or at least suspect the same.

Parasites, such as the cysticercus, may first manifest themselves in the eye, and Fuchs has called our attention to these sub-retinally.

Benign or malignant tumors may first manifest themselves in the eye, and it is not infrequent for a tumor to be present in the interior of the eye for several years before it occurs secondarily by metastasis in the liver and elsewhere. These patients may likewise fall into the hands of the ophthalmologist and he may be the first to make the diagnosis or to aid the internist in determining the real etiology of such a case. Nine years ago, in Vienna, I had an opportunity to examine a patient with melanosarcoma of one optic disc, involving the blood vessels, which had been watched fifteen years by Dr. Hans Lauber, without metastasis in other organs.

Dr. Francis P. Emerson of Boston has so ably presented many of the ear, nose and throat symptoms and diseases which may be related to the general system, that I shall quote him freely.

We have the following skin lesions which may be primary in the nose or throat, or arise from some other focus: Impetigo from septic discharge from the nose or ear. Erysipelas from erosions, or discharge from the nose or ear as mentioned by Holmes years ago. Lupus as an extension from the nose. Leprosy from the nose. New growths from the throat, nose or ear. Angioneurotic edema. Lymphangioma as an extension from the tongue or cheeks. Syphilis may be primary in the nose, throat or ear. Tuberculosis may be primary in the nose and throat. Scrofuloderma may be secondary to tonsillar infection. Noma may be primary in the nose. Scarlet fever and measles usually have their incidence in the throat. Erythemas may arise from infection of the nose or ear, and urticaria from septic discharges. Cellulitis may result from septic discharges from the nose or ears. Lichen planus may occur in the throat as a neuro-

tic manifestation. Leukoplakia can be primary in the soft palate. Keratosis is often primary in the tonsils, pharynx and at the base of the tongue. Pemphigus may be primary in the palate, pharynx, tonsils and buccal surfaces. Actinomyces is often primary in the pharynx, tonsils and cheek. Glanders is often secondary in the nose.

In the department of orthopedics, we have the arthritides, acute, subacute and chronic, in which the nasopharynx is supposed to share the honors with the gastrointestinal tract, as an etiologic factor. It is still an open question, however, whether the gastrointestinal disorder may not itself be secondary to a focus in the nasopharynx. Nasopharyngeal conditions in children may be manifest as: Syphilis, primary in the nose, throat or ears. Tuberculosis, primary in the nose or throat. New growths, primary in the nose, throat or ears, especially epidermoid cancer and lymphosarcoma. Measles with its incidence in the throat, and also scarlet fever with its incidence in the throat. (Dr. Place has called attention to the fact that in those cases in which one tonsil has been removed and the other not, on the operated side the evidence of scarlet fever is almost nil. The course of the disease seems to be milder. Dr. Place also thinks that pigeon and funnel shaped chests in children are due to nasal obstruction and that rickets play a secondary rôle). Vincent's angina is very frequently primary in the tonsils as well as about the teeth. Streptothrix is often primary in the tonsils. Rheumatism, from a focus in the nose, throat or teeth. Endocarditis, from a focus in the nose, throat or teeth. Nephritis, from a focus in the nose, throat or teeth. Arthritis, from a focus in the nose, throat or teeth. Bronchitis, secondary to an adenoid or tonsillar infection. Pneumonia, secondary to an adenoid or a tonsillar infection. Abscess, retropharyngeal or peritonsillar. Mycosis, primary in the tonsils and pharynx. Herpes may be primary in the fauces and pharynx. Asthma may be due to a hyperplastic ethmoiditis, sphenoiditis or rhinitis.

The relation of focal infection in the nasopharynx to diseases of the ductless glands remains unsolved. Beebe remarks that there is no complicating factor in goiter which is

more troublesome or more dangerous to the patient than tonsillar infections to which they are subject. This observation is significant, as repeated tonsillar infections at more or less regular intervals are usually exacerbations of a chronic focus and not fresh infections.

That thyroid conditions are made worse by toxemia originating in the nose or throat is conceded. What rôle such infections play in the etiology of goitrous conditions is a problem particularly for those of our fellows living where ductless gland disease is endemic. Dr. Joseph C. Beck has often mentioned the relation between tonsillitis and goiter.

Infection as a cause of general diseases is as old as the history of medicine. That such infection has its origin at the beginning of the respiratory tract as a chronic focus with acute exacerbations is recognized by clinicians in an increasingly large number of general diseases.

In 1894 many writers, including Pasteur, Frankel, Martin, Selmi and Bouchard, pointed out the danger to individuals from autointoxication caused by ptomaines, which were formed by the action of bacteria on organic matter, and distinguished between the toxic and the nontoxic. The one invariable circumstance, however, surrounding the development of ptomaines was the part played by bacteria.

It is common knowledge that under normal conditions streptococci, staphylococci, micrococci catarrhalis, pneumococci, diphtheria and pseudodiphtheria bacilli, meningococci, tubercle bacilli and many other pathogenic bacteria are to be found in the nasopharynx. Many of these we associate with the most dangerous clinical symptoms. But it is also known that the same organisms may be nonpathogenic until conditions arise that increase their virulence. No one believes that such organisms are swallowed or enter the lymph or blood currents nonvirulent, pass Nature's protective secretions and then from the lowered resistance of the host, or any other cause, become manifest in an active arthritis, endocarditis, nephritis, or other pathologic condition. On the other hand, we know that in the nasopharynx and teeth we may have all the conditions pres-



ent to cause a toxemia, septicemia or pyemia with acute, subacute or chronic manifestations in distant organs; that is, specific organisms in patients at an age when the resistance is often lowered, with organs undergoing involution, disintegrating organic matter present, temperature and moisture favorable, etc., which means that we may have virulent chronic foci, as well as acute focal infections.

These facts were called to the attention of the medical profession by Arkovy of Budapest during the period of 1878 to 1898, and were substantiated by the painstaking microscopic findings of Miller of Berlin from 1884 to 1894, and by the clinical experience of William Hunter of London, who published his results in the *Practitioner* of 1900. Recently these findings have been emphasized by Billings, Rosenow, Davis, Mayo and others.

Miller of Berlin, who was educated as a physician and also a dentist, showed bacteriologically that focal processes in the teeth, tonsils or sinuses kept up a low grade infection of the adjacent tissues, and during exacerbations this might extend by continuity, or directly by way of the lymphatics or blood stream to neighboring or remote organs. Haskin since 1894 has repeatedly called attention to toxemia and septic conditions starting in the alveolar process.

It is known to laryngologists that a large number of people carry, for years, a constant streptococcus focus in one or all of these localities, and that so-called repeated infections are only exacerbations of a chronic process, as evidenced by the fact that so-called colds start in the following way:

For years a patient will be subject to sore throat, and then the infection goes up and down; or to a cold in the head, which then goes down; but the clinical symptoms seldom alternate, showing that the focal processes have a period of quiescence and are then subject to acute exacerbations.

Certain clinical manifestations of a general character are recognized as resulting from such foci, arthritis, myositis, endocarditis and nephritis being the more common, with acute or chronic symptoms. In addition many clinicians include pneumonia, bronchitis, secondary anemias, duodenal and

gastric ulcers, cholecystitis, appendicitis and chorea. The clinical manifestations are often worse coincidentally with an exacerbation of the focal process.

The relation between this focal process and the syndrome is often overlooked because of the stormy character of the exacerbations. It is not safe to trust to the history of the patient. Many patients have only a slight pharyngeal irritation, particularly in the morning, which they ascribe to smoking, indigestion, etc. The onset of the exacerbation to them is a fresh attack of their malady. More than this, if there is an enclosed abscess in connection with the teeth or tonsils, it may discharge directly into the lymphatics. It is necessary, then, for the clinician on recognizing symptoms of toxemia to remember that there may not be much local evidence to confirm his diagnosis.

The number of diseases whose etiology may depend on some focus in the nasopharynx is sufficiently formidable to show: first, the service which our specialty can render the internist; second, our relation to other specialties; and, third, that foci in the nasopharynx and teeth may be manifest only by remote general symptoms; but when such symptoms indicate toxemia, such foci should be suspected.

If this long list of eye, ear, nose and throat diseases or of general diseases which may affect the eyes, ears, nose and throat mean anything in group medicine, how much more meaning would a complete list from all of the specialties have? If we need teamwork today and co-operation between the different specialists, will this not be required even more in the future? Specialties are developing within a specialty just as bronchoscopy, esophagoscopy and suspension laryngoscopy have developed, in recent years, in the field of laryngology. This already means subdivisions of a specialty and in the future will mean further subdivisions. If teamwork is required now it will be required more and more as the next decade goes by. Younger men, as they enter our profession, are apt to be more alert than we are concerning the future, and if we are to avoid professional "ruts" we must be prepared to share their viewpoint.

In conclusion let me say group medicine

will not elevate more than a very little the lazy, indifferent or self-contented members of our profession, who are too easily satisfied with what they choose to call "good enough"; but it will elevate the professional standing and efficiency of those who are willing to work hard and conscientiously, especially if they will take post-graduate work for one or two months every year or two. The satisfaction of things well done and of rendering real service can only be fully appreciated by those who believe in the motto that "anything worth doing at all is worth doing well." As Dr. Robert Levy said last spring at the conclusion of a consultation: "If we do our work well and conscientiously success will come." One of the members of our profession who had attained a national reputation, upon being congratulated upon his brilliant mind and phenomenal success replied that his brilliant success was 99 percent hard work.

### **RADIUM THERAPY IN DISEASES OF THE NOSE, EAR AND THROAT.\***

**ZDENKO VON DWORZAK, M.D., DENVER.**

During the last few years considerable advance has been made in the study of the therapeutics of radium. An accurate estimate of the value of any therapeutic agent is usually not arrived at until considerable time has elapsed. Naturally the advocates of radium therapy met a considerable amount of opposition from the more conservative members of the medical profession, which obviously caused a drawback, but it undoubtedly had the corresponding advantage, that it tended to check the indiscriminate use of radium at a time when it was still more or less in the experimental stage.

At the present time, however, this skepticism in regard to the efficacy of radium is gradually disappearing in view of the brilliant results achieved, and it is now generally agreed that in radium we possess a valuable adjunct to our therapeutic armament. Radium does not supersede surgery, but it is in collaboration with the knife and the roentgen ray the best selective and de-

structive agent as well as the best palliative we have. It is often used too late, as a last resource, sometimes when patients are in almost a moribund condition, and when all other measures have failed to give relief. In such instances, even if we have succeeded only in alleviating the distressing symptoms and giving the patient a certain amount of comfort, the radium therapy has accomplished what nothing else is capable of doing, and has justified itself.

The literature on radium therapy is very scarce. Some contributions have been made on the subject in general, but in the department of the diseases of the upper air passages little has yet appeared. This is not surprising. Few investigators at present are ready to issue formal reports of their work, wisely refraining from announcing results until their deductions are placed upon a stable basis of well proved facts. The securing of such data requires long continued and painstaking study of the action of the radium under conditions favorable for accurate observation; when these conditions have been fulfilled we may hope for the beginning of a literature valuable and instructive.

It is generally accepted that radium holds a distinctive place in the treatment of neoplasms. In no class of cases is it of greater value than in the types treated by the otolaryngologist. This is particularly encouraging because of the fact that results following the surgical treatment of many of these neoplasms have not been satisfactory. Radium has a specific selective action on certain tissues, as basal celled epithelioma, sarcoma, angioma, causing the tumors gradually to shrink and disappear. Its action on other types of tissue, for example the squamous celled epithelioma, is destructive. The more rapidly growing tumors, such as lymphosarcoma are made to disappear more readily by the use of radium than the slowly growing tumors, such as mixed tumors of the parotid or slow growing fibromas of the nose. Scar tissue, keloids i.e. fibrous tissue, are very slowly absorbed. The action of radium on any tissue is in proportion to the abundance of nuclei. The more closely the tissue approaches the embryonic type, the more amenable it will be to the radium treatment.

\*Read before the Colorado Congress of Ophthalmology and Otolaryngology, July 24, 1920.



Radium is used in the form of plaques, needles or tubes, or radium emanation compressed in glass applicators. The disk form of application is used in superficial lesions, with little or no screening, or it is screened and applied to penetrate, as in the treatment of glands. The tubes are used with screening in applicators over the tumor, or directly imbedded in the tumor. In treating the nasopharynx the tubes are placed directly into the region affected. In larynx cases the tube is inserted directly if possible in the larynx and left in place while the patient is suspended by the Lynch suspension apparatus, in all other cases the tube is introduced through the wound after a high tracheotomy. Neoplasms of the antrums and sinuses are attacked by opening the cavities and inserting the unscreened tubes directly into the center of the tumor. Quite often these methods, we might call them operative, are combined with raying from outside, the crossfire method, which I consider gives the best results.

There is a difference of opinion in regard to the dosage, the screening and time of application. The dosage must always be decided upon for each individual case. I obtain the best results with large amounts of radium, heavily screened, from 150 to 300 mg, 1mm lead screen, 10 to 24 hours' duration of each application. For cross-firing I use at least 200 mg, the tube inserted in a container of 1 to 2mm lead, covered with 2mm pure rubber, to cut off the undesirable secondary radiation, applied in a lead box at a distance of 1 to 2 cm from the surface. In view of the importance of accurate dosage and technique it is clear that in order to obtain good results special training and prolonged experience are absolutely essential—a fact which too many physicians are prone to forget, and that in the hands of those who have not had an opportunity of acquiring such experience the radium treatment may be dangerous. In not a few cases disastrous results are to be ascribed only to the inexperience of the operator. He would start the same way as a surgeon would who did not know the principles of aseptic surgery, expecting to sacrifice his patients.

Besides this destructive action on neo-

plasms I have to mention the palliative properties of radium. I have in mind the relief of distressing symptoms in so-called hopeless cases. I have no apology to make for bringing before you a subject with which you are familiar, for I believe that these patients ordinarily receive very little consideration, after their condition is pronounced hopeless; and those patients are always in a most deplorable state, mentally, physically and socially. The treatment of such cases is apt to be to use opiates in quantities sufficient to relieve the pain, while obnoxious odor and secretions remain uncontrolled. The profession should not be skeptical, indifferent or uninformed, as to the fact that radium is the one remedial agent that may relieve all these symptoms. After radium is used the pain is materially relieved and the disagreeable odor which accompanies the breaking down of cancer tissue is corrected. This is a very great boon to the patient, as well as to the household. Further, radium controls hemorrhage.

Radium shares the field with Roentgen rays in the treatment of a number of diseases; in certain cases they may be regarded as alternative agents, often a combination of both is desirable. Both produce in living tissue first a selective and second a destructive action. By selective action is meant a retrogressive change in the tissues that goes on without visible macroscopic inflammation. In the case of Roentgen rays the selective action is by far the more important. All of the various methods for measuring Roentgen ray dosage are directed toward the so-called erythema dose. Few Roentgen ray therapists are willing to push the dose to a point at which destructive inflammation may occur. With radium the case is entirely different, the dose may even be pushed to the point of destructive inflammation without doing harm. In a word, Roentgen rays, while a splendid "selective" are a poor "destructive" agent, when good cosmetic effects are desired, because of the well known dangers and the uncertainty of the repair of the tissues. Radium is not only a useful "selective" but also a good "destructive" agent. This destructive power is one of its important uses because of the ease of employment and the elegance of the



reparative tissue. There is no danger of electrical shock to the patient, less danger to the patient and operator, less danger of burns. The main thing is the proper use for each agent. Radium may be used when it may be brought close to the trouble, and the Roentgen ray for deeper seated conditions. The effective action of radium is limited to a few centimeters at least, while the Roentgen ray penetrates a much greater distance. Both are absolutely necessary in our work, each with its definite indication but the action of one overlapping that of the other.

It is not my purpose to speak more of the physical properties of radium, or how it acts. I will give you now my own clinical observations and deductions, and present to you a few histories.

Case 1. Male, 48 years old, hitherto in perfect health, active and vigorous. There is present an epithelial carcinoma, originating in the right side of the throat, invading the larynx, pyriform sinus and right tonsil. Ulcerations, marked aphonia and dysphagia; deglutition nearly impossible and very painful. Two hundred and fifty mg radium given in three sessions of six hours each at intervals of two days, crossfire method. One tube, 50 mg, imbedded in the tonsil, two needles, 25 mg each, inserted in the mucous membrane and 150 mg heavily screened outside at a distance of 2 cm. The first effect was an almost immediate control of the secretions of the throat—they practically ceased. The areas of ulceration diminished in extent and disappeared entirely in about five weeks. The infiltrated tissues were reduced in size and became softened more natural in appearance. A few small burns caused but a slight annoyance. The case was practically cured in about six weeks.

Case 2. A woman, 27 years old. As a result of a tonsillotomy, the whole throat having been cut to pieces to arrest a hemorrhage, there was terrible sloughing of the soft palate and later thick scars running in all directions. Swallowing was very painful, causing reflex contractions of the diaphragm. Radium was applied in the form of a plaque, double strength, unscreened, in sessions of twenty minutes each for two weeks daily. The greatest part of the scar tissue is ab-

sorbed, the remaining fibers soft and flexible.

Case 3. Man, 45 years old. Sarcoma maxillae. The malignant tumors of the antrum Highmori as well as sarcoma of the nasopharynx are practically incurable. The ghastly extirpation of the superior maxilla affords only relief for a short time. How elegant the radium application and how astonishingly satisfactory! The tumor in this case originated from the fossa pterygo-palatina, and involved already the posterior wall of the left orbit. The eyeball was transfixed and protruding. There was considerable chemosis. I attacked the tumor by opening the maxillary sinus (Denker's method) and found the whole cavity filled by the tumor. I inserted into the tumor a soldering iron, not too hot. The slow heat gradually cooked the tumor and made space for the radium tube. One hundred and fifty mg of radium, screened only by a 1/10 mm. silver container, remained for twenty-four hours. After one week I had to remove a few small bone sequestra; after three weeks the whole tumor had sloughed away, the cavity was cleared, and a few granulations had to be curetted. The patient gained twelve pounds. Six months after radium application the cavity looks perfectly clear, but the eye shows after effects of the radical treatment—the eyeball looks atrophic. The patient is highly improved. Nevertheless, I consider his condition precarious.

Case 4. A woman, 54 years old. Has had larynx trouble the last twenty years. Several times pachydermic growth on her left vocal cord have been removed, the last operation having been formed in 1917. In the meantime recurrence took place, the growth looking more dusky and more like sarcoma than papilloma. It occupied the central half of the vocal cord and overflowed somewhat into the ventricle. Attempts to apply radium when she consulted me were not satisfactory owing to the patient's restlessness under local anesthesia. The growth progressed rapidly as a papilloma. Finally the patient consented to a tracheotomy. This was performed under ether and through the wound I passed an applicator containing 65 mg of radium and transfixed it precisely between the vocal cords; one-half mm. lead screen, duration of



application one hour and thirty-five minutes. In two months the larynx was perfectly normal. The papilloma of the larynx is in my opinion a tumor that responds always favorably to the radium ray. In other tumors, especially the hemorrhagic form of larynx neoplasms, the use of radium is contraindicated, as it increases hemorrhage from the neoplasm and the area immediately surrounding it. The results obtained by my personal experiments on tubercular conditions of the larynx and epiglottis are very encouraging. Only in ulcerative tuberculosis did I find a contraindication; lupus is positively benefited; also large masses of granulations shrink very quickly. It is remarkable to see an epiglottis the size of a walnut diminish in size in a few weeks to a leaf not larger than a dime.

The neoplasms of the ear, sarcoma, mixo-sarcoma, epithelioma, have to be treated according to their seat.

Finally, a few words about my investigations concerning otosclerosis. Since my last publications on the value of radium application in cases of otosclerosis, two years have passed by, giving me a good deal of new material upon which to work out my theory and put it on more stable basis. I proved by animal experiments that radium rays absorb fibrous and bone tissue, both formations found in otosclerosis proper i. e. new formation and proliferation of bone tissue, ankylosis of the stapes in the fenestra vestibuli, and finally a severe ossification of this fenestra. Further I found to my great surprise in about seventy-five percent of the otosclerotics a considerable amount of uric acid present, and I ascribe a great number of changes in the capsule of the inner ear to the irritating reaction of the uric acid. The natural way was to try to eliminate the uric acid, and again radium, applied in the form of intravenous injections and inhalations of radium emanation, was the agent that freed the patients of it. I have increased in the last years the amount of radium for raying from 5 to 15 mg, applying it from ten to thirty minutes, until the patient feels intensive heat and the drum shows a hyperemic reaction. Of radium emanation for room inhalation I give from 50 to 500 microcuries to the liter of air.

In treating middle ear suppuration I

douche the ear with radio-active water (50,000 M. U.), dry with warm air, and use then a continuous flow of oxygen and emanation; the latter I employ also through the catheter in cases of tuborrhea. The active deposits of the radium emanation seem to act as a germicide and stimulant.

In using radium I never had to deal with toxemia, but I will not deny the fact that it may set in in any case and prove fatal. Therefore I would suggest two precautions: first, a patient with a low leucocyte count should not be given prolonged application of radium, and secondly, when radium is used it should be accompanied by the liberal administration of alkalies.

I hope I have given you in this brief report a picture of the possibilities of radium therapy. I am not as optimistic as I was years ago, and advocate a collaboration of knife, roentgen ray and radium. The number of patients cured by radium alone is probably very small relatively, but the number of inoperable cases that are markedly relieved and receive months and years of comfort, is quite large. I do not, however, recommend radium treatment of any neoplasm that is surgical. In such cases the patient should have the benefit of both, surgery and radium; but those who otherwise have not a ray of hope, let us encourage with the information that there remains a remedy which promises a measure of relief and an occasional cure. Optimism may, and often does, point to a road that is hard to travel or to one that leads nowhere; but pessimism leads to no road at all.

### HEREDITARY APPENDICITIS\*.

S. D. VAN METER, M.D., Denver.

The frequency of series of cases of appendicitis occurring in certain families is so well established that it is unnecessary to offer further proof that heredity plays an important rôle in the etiology of the disease, but the way in which it operates is an interesting subject for study and discussion. Many explanatory theories have been advanced, but that of inherited anatomical pe-

\*Read at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1919.

cularities and that of susceptibility to infection are the two most popular. The former has been defended by Tuffier and the latter by Delbert. Unquestionably both are important factors. The individual who is susceptible to infection, especially to lymphatic involvement, certainly is more prone to appendicitis because of the proportionately large amount of lymphoid tissue found in the appendix than one who is blessed with a high resistance. The direct connection of susceptibility to infection in any given series of cases is difficult to establish. In a series in which an anatomical peculiarity that renders it difficult for the appendix to return the contents of its lumen to the cecum is found in each case, it is easy to demonstrate the direct relation between such anatomical peculiarity and the appendicitis. To the stasis in both lumen and circulation, the result of anatomical peculiarity, should be credited the chief responsibility for the attack, although there may exist a low degree of individual resistance and other accepted etiological factors. When such anatomical peculiarity is common to the series, it is, I believe, logical to conclude that while there may be an inherited susceptibility to infection, the chief hereditary cause is the anatomical peculiarity.

In support of this theory it is my desire to cite two series of cases, the latter of which is worthy of record for no other reason than its number and the short space of time in which the cases occurred.

Family E., six children: During a period of six years five of the children and the mother came to operation for acute appendicitis. One daughter, in addition to appendectomy, had duodenal ulcer and the mother had cholelithiasis. All had large edematous appendices, with a strikingly similar buried condition of the first one or two inches of the organ from the base, with angulation at the point where it became free, due to shortness of the meso-appendix. All of this series were operated on early enough to dispense with drainage and made good recoveries.

Family W., ten children: The mother gave a history of chronic appendicitis cover-

ing a period of more than twenty years. The eldest son, who had had only disturbances of digestion previously, had a fulminating attack on April 2, 1918, at the family ranch in Wyoming, fifty miles from the nearest railroad station. Intelligent medical care was given by the family physician, who followed the expectant plan of treatment. Rupture and consequent abscess resulted, which I evacuated seventeen days after onset. A full pint of colon bacillus pus, an enterolith one-half inch in diameter, and a large slough which I believed to be the appendix were removed at operation. The patient made rapid recovery for a pus case, but was left with a hernia.

Seven months later during a severe snowstorm, which delayed the journey, a telegram announced that the second son was on his way to Denver with bad appendicitis. An hour later a second wire told of his unfortunate death en route without operation. From the history of his attack, sickness and death, he undoubtedly died from general peritonitis following a ruptured appendix.

On April 1, 1919, the eldest daughter, who was then three and a half months pregnant, had what she considered her first attack of appendicitis, but, like her brothers, she had had disturbances of digestion, more than likely of appendiceal origin. At first, owing to the existing pregnancy and the distance from the railroad, it was thought best to attempt to carry her through this attack without operation. As her symptoms became steadily more alarming, she was hurried to Denver for operation, which was performed April 5th, five days after the onset of her attack. Operative findings: Considerable sero-purulent fluid surrounding a twisted appendix which I would liken to a corkscrew; the last two inches of the appendix gangrenous; one enterolith the size of an olive pit. Wound and stab Penrose drains were used. The patient was apparently mastering the infection, but aborted on the eleventh day after operation. Two days later elevation of temperature and a leukocytosis of 19,000 indicated unrelieved infection, although the operation wound and stab drainage was practically healed. Vaginal exam-



ination revealed a collection in the culdesac which was drained per vaginam. I did this with considerable misgiving, being loath to establish a pus drainage close to a patent uterine canal so recently emptied of a four months' pregnancy. Exploration of the uterine cavity was made prior to doing the colpotomy, and it was found empty and free from any signs of infection; nor were there any following the colpotomy, after which the patient made an uninterrupted recovery.

On April 28, 1919, the patient had so far recovered that the mother concluded to have her appendix removed before returning to the ranch. At operation I removed a tubo-ovarian cyst and a similarly crooked corkscrew appendix with an adhesive band obstructing its lumen near the base. Four days later the family physician telephoned that the second daughter had appendicitis, and with the previous lack of success with the expectant treatment, they decided to lose no time in getting her to the hospital, where she was operated upon May 4th. Three days later the third daughter had an acute attack, and the same course was taken in her case. Sixteen days later the third son had an attack of abdominal pain and vomiting, which, in the absence of tenderness and rigidity in the lower right quadrant, was not diagnosed as appendicitis, although believed to be such. Operation of the second and third daughters and the third son revealed the same corkscrew appendices, and all save the latter had enteroliths like the older children, but smaller in size. All made good recoveries and have been free from their so-called "stomach attacks".

Being strongly impressed with the remarkable features of the latter series, investigation relative to other possible explanations of this epidemic was made. It is most natural to think that some prevalent infection was responsible for the almost simultaneous occurrence of the attacks in the three daughters and the youngest son. The well established connection between follicular tonsillitis and appendicitis was considered but none of the patients had tonsillitis. Influenza, being prevalent during that period, was eliminated, as none

had had that disease. Others living under the same conditions as to diet were in good health, and except one young man who had had appendicitis for a year or more, no one else in the neighborhood was operated on for appendicitis during that period.

The only probable common cause found for the attacks in the three daughters was the fact that they had been waiting upon their invalid grandmother, which required lifting and consequent straining of the abdomen and its contents. None of the remaining four children have had symptoms of appendicitis but the father has lost confidence in the Ochsner plan of treatment and has become an ardent Deaverite. Should any of the unoperated members of the family have symptoms suggestive of appendicitis, no time will be lost in securing surgical treatment.\*

These two series of cases are, in my opinion, very convincing proof of the point claimed, and I know of no record in surgical literature of so many in one family being stricken within so short a time—seven in thirteen months, and five within seven weeks.

619 Majestic Building.

#### DISCUSSION.

**W. F. Singer, Pueblo:** Dr. Van Meter has left very little to be said with reference to hereditary appendicitis, as described by him. I have had one family in which I had four cases of appendicitis. I am satisfied from the identical conditions found in each one that it savored of the same conditions as described by Dr. Van Meter. I want to call attention at this time to something that Dr. Van Meter touched upon, the trauma as the result of lifting. I had two cases of women, one seventy-four years old and another seventy-six years old, in which it was perfectly easy to trace the trauma as a causative factor of appendicitis. That was very plain and easy to demonstrate in those two cases. We ought to do more in regard to appendicitis; we have got to the point where if anyone reads a paper on anything having to do with appendicitis we sort of smile and do not take the interest we should in it. It seems to me we

\*Since this article was written, during the author's absence from home, the father was operated by Dr. Wm. B. Craig for acute appendicitis. A short time afterward the author operated a fourth son for subacute appendicitis, finding a similar "cork-screw" anatomy of the organ, and a little later the eldest son (who was drained April, 1918) for recurrent pain in the McBurney region. Fully two inches of the appendix had failed to "slough off". All three of the latter cases made excellent recoveries.



have not studied enough about restoring normal relations before closing the abdomen. This is an important matter, because one may have trouble later as the result of a malposition which has been the result of faulty technic.

**Geo. A. Boyd, Colorado Springs:** In a family of ten children I have operated the father and five of the children. One son died of appendicitis before I knew the family. So familiar did they become with the symptoms and operation that they made the diagnosis themselves in two instances and sent the children in without any attendant, with instructions for me to take out the appendix.

The father had a small fibrous appendix. The last one-fourth inch was larger than the rest of the organ and was connected with the fibrous portion by a narrow neck of fibrous cord. Three of the cases had enteroliths; two of these had ruptured appendices with abscess formation, and one was still in a gangrenous state. One appendix was acutely inflamed and edematous, and presented as soon as the peritoneum was opened. One other was rather small, after the type of the father's, obstructed and twisted by adhesions and peritoneal bands. I assume the doctor meant that some particular types of appendices may expose to appendicitis rather than that the disease is hereditary.

**T. A. Stoddard, Pueblo:** This is a subject that does not get us very far, but it is rather interesting—the anatomical peculiarities about the appendix, the cause of appendicitis—and I see no reason why appendicitis should not run in families. We know that a father sometimes bequeaths to the son or daughter some peculiarities of anatomical shape of the nose or other feature of the body, and why not the appendix? But I believe we have to go a step further, if my experience has been worth anything. In a family which I doctored for a long while I confined the mother with her fourteenth baby; two weeks afterwards I operated for a ruptured appendix; shortly afterwards her son's wife had appendicitis and I operated upon her; a short time afterwards one of the daughters had appendicitis and I had to operate upon her. Some time after that another son's wife had appendicitis, and so I say it more than runs in the family. Some people say that when people live together for a certain length of time they get to look like each other, and maybe the appendix gets wrong in the same way.

**Dr. Van Meter (closing):** I have very little to add in closing the discussion, but I would like to ask Dr. Stoddard if he feels there is something else than the association which is causative in that family? I feel in this case, this last series, that the striking similarity of all the appendices bears up the claim that the main feature that is inherited is the shape of the appendix, that will not allow it to free itself of enteroliths and other things, and in studying this series of cases I observed that all except the one that completely sloughed had the same shape of the appendix. The fact that the cases in the last series occurred so closely together is conclusive, to my mind, that there is still another factor, but what that factor was, other than the one I mentioned as the occupation, I do not know and could not discover. It is a fact, however, that no other people eating at the same table had the disease. In the hospitals hardly any new class of nurses comes into the hospital but what a great number of them are stricken with appendicitis, due to lifting patients. Further than that, I have nothing to add.

## A STUDY OF THE PULSE, TEMPERATURE AND RESPIRATION IN INFLUENZA.

From the University Service in Medicine, City and County Hospital of Denver.

CASPER MARKEL, M.D., Denver.

Numerous reports have been published during the last influenza epidemic, mainly that of 1918-1919, regarding the various clinical manifestations of this disease. While it was noticed, in a somewhat cursory manner, that certain peculiarities in the temperature, pulse and respiration did exist, nevertheless very few detailed studies were made. In the recent recurrence of the epidemic these peculiarities again constituted such a prominent feature in the clinical picture of influenza as to become somewhat characteristic. These variations in pulse, temperature and respiration were studied in a series of one hundred cases in the wards of the City and County Hospital of Denver, and the deductions drawn from the result of this research were made the subject of this paper.

**TEMPERATURE.**—From a review of the vast amount of literature which has been written within the last few years on the clinical aspects of influenza, it was found that the ideas held by the majority of observers on the course of the fever in this disease could be reduced to two groups:

(a) The remittent, continuous or irregular type of temperature curve: Manges<sup>1</sup> in a discussion of the symptomatology of influenza concludes that the fever is more or less continuous, about 104° F, and usually persists from eight to ten days in the moderately severe cases. The fever at the onset gradually rises, reaching its maximum in less than twenty-four hours. Bloomfield and Harrop<sup>2</sup> state that the fever continues for a variable period, falling gradually in about one-half the cases and suddenly (in twenty-four to thirty-six hours) in the remainder. In mild cases a drop in temperature on the third day was observed. Dunn<sup>3</sup> found that this fall during the third day occurred in 87% of the cases. In a number of the remaining cases the temperature suddenly rises again to 103° F-104° F and re-



mains at this point, with daily variations of one or two degrees for ten days. This secondary rise has been interpreted as indicating the onset of a complication, such as a bronchopneumonia. The temperature drops by lysis in one or two days. The temperature may fall below normal and remain so for many days or slight rises in temperature (99° F-100° F) may occur for a variable period. The remittent type of fever has been observed in only a small minority of cases.

The characteristic fever curve in influenza, as described by West<sup>4</sup>, is one of short duration and of moderate intensity. The temperature rises gradually to its maximum, remains at that point or at a somewhat lower level for two or three days and then falls rapidly to normal. A characteristic crisis was not observed. Apyretic and hyperpyretic types of influenza have been described. Hector McKenzie<sup>5</sup> describes an irregular temperature curve in which the temperature either falls by lysis or crisis, more frequently by lysis.

Coutant<sup>6</sup> observed an inverted type of temperature; one which was normal except at 4:00 or 8:00 a. m. As a rule the morning temperature is usually one or two degrees lower than the evening reading.

(b) Sabshin<sup>7</sup> has classified his cases of influenza into four distinct groups:

1. Mild or abortive..... 30%
2. Ordinary cases ..... 40%
3. Malignant cases ..... 12%
4. Irregular cases ..... 18%

In the first type the fever is about 38° C-40° C. The temperature drops to normal about twenty-four or forty-eight hours after admission. The temperature, in the second type, drops within twenty-four to forty-eight hours but rises again the next morning to the same or to a slightly lower degree and then slowly declines with slight fluctuations to normal in three to five days. In the third type the fever usually rises suddenly and remains high, with few fluctuations, death occurring in three to seven days. In the last type the temperature usually continues above normal with fluctuations of a degree or so. Some of these cases may show a sudden drop in temperature by crisis but this is followed by a secondary rise to about

the same level. This is then succeeded by a slow decline in fever; the process lasting three to five weeks. During the course the patient may run a hectic temperature for a few days.

Williams<sup>8</sup> does not think that there is anything characteristic in the temperature curves recorded during the last influenza epidemic. He illustrates his paper with a series of temperature curves obtained in cases in which various organisms, the bacillus influenzae, the pneumococcus, and the streptococcus hemolyticus, had been isolated. After a careful study of these curves he concludes that there is no characteristic temperature chart for infection with any of these organisms.

Influenza has always heretofore been described as a typical three-day fever, similar in many respects to that seen in dengue. During the recent epidemic reports by many observers from various localities seem to indicate that the fever, in uncomplicated influenza, persists in the majority of cases five to seven days before it returns to normal. Influenza, therefore, as observed during the last few years, should be called a six-day rather than a three-day fever.

A critical analysis of the temperature records taken at four-hour intervals, reveals the fact that three distinct and somewhat characteristic temperature curves can be obtained; each depending in turn upon the severity of the disease process:

1. Mild course (29%). These cases usually entered the hospital with a temperature of 101° F-102° F. In a few of the cases, detected early, it was observed that the temperature at onset rises gradually, rarely reaching its maximum in less than twenty-four hours. The temperature then gradually falls by lysis reaching normal in three or four days.

2. Ordinary course (60%). This type of curve appears in the great majority of cases and is the most characteristic. The onset of the fever is identical with that in the type above described. The temperature gradually rises during the first twenty-four hours to 102° F-103° F. The temperature then remains at this point with daily variations of one to two degrees for two or three days, and then drops to normal or slightly below

normal. The next morning there is a secondary rise in temperature to the same or to a somewhat lower level. In three to five days the temperature gradually falls to normal by lysis. A subsequent rise in temperature, after the fourth day, usually ushers in a bronchopneumonia.

3. Irregular course (11%). The temperature in this type of case is usually above normal, with daily fluctuations of two to three degrees. In some of these cases there is a fall in temperature during the third day as though by crisis, but this is followed immediately by a secondary rise in temperature to the previous level and the temperature remains at this point, with daily variations of one to three degrees, for about one week, when it falls gradually to normal by lysis. This process usually lasts one to three weeks.

In a great majority of the cases, the temperature after a gradual fall by lysis remained subnormal for seven to ten days, while the respiratory and pulse rates were markedly diminished.

**PULSE.**—The most striking feature in the uncomplicated cases of influenza described during the last epidemic was the slow pulse. Even with temperatures as high as  $103^{\circ}$  F or higher the pulse rate very often was as low as 80, while not infrequently a rate as low as 60 was recorded. With the fall in temperature at the beginning of convalescence the average pulse rate rarely exceeded 60. So constant is this slow pulse that Fail<sup>9</sup> suggests that it may safely be taken as a good working rule, that if the pulse rate constantly exceeds one hundred either the patient has not influenza or some complication has intervened. A sudden increase in pulse rate is frequently seen in the development of a pneumonia or a bronchopneumonia. As a rule the pulse rate is not as rapid as the pulmonary involvement would indicate. An increase in pulse rate twenty-four hours before death is frequently seen.

In the cases observed, the average pulse rate was 89.06 while the average temperature recorded was  $100.92^{\circ}$ . Of the one hundred cases recorded, the pulse was found to be between 80 and 90 in 27%; 90 to 100 in 34%; over 100 in 15%; and under 80 in 24%. A disparity or dissociation between

the pulse and temperature has been described. In this study it was found that no apparent dissociation between the pulse and temperature existed. The average pulse-temperature ratio obtained was 89.06/100.92 or .88. If there were a dissociation between the pulse and temperature the pulse-temperature ratio would be slightly above, more often at or below, that obtained under normal conditions (72/98.6 or .73).

A somewhat typical pulse was present in 57.2% of the cases. The pulse rate at the time of the onset of the disease was relatively high; the average being 106.7. On the second to the third day the pulse rate dropped, the average rate being 83.9, and gradually returned to normal in five to seven days. In some cases, during convalescence, as low a pulse rate as 50 was recorded. The pulse curve does not follow the temperature curve in the ordinary uncomplicated cases. There is no secondary rise in the pulse curve to correspond with the secondary rise in temperature, but, on the contrary, as the temperature is gradually rising the pulse tends to decrease in rate.

The pulse during the past epidemic has been described as being full, of large volume and often dicrotic. During the recent recurrence of the disease a dicrotic pulse was very seldom observed.

**RESPIRATION.**—The respiratory rate is usually not very rapid, the average being 25.6. A sudden rise in the respiratory rate is, as a rule, a good indication of the existence of a complicating bronchopneumonia.

**SUMMARY.**—1. Three types of temperature curves were observed in influenza:

- (a) Mild course
- (b) Ordinary course
- (c) Irregular course

2. The pulse rate during influenza was slow. In the cases studied a dissociation between the pulse and temperature was not observed. A typical pulse curve was found in 57.2% of the cases.

3. The respiratory rate was usually not as rapid as the pulmonary involvement would indicate, the average being 25.6.

Table of Pulse and Temperature data obtained in a study of one hundred cases of influenza:



Averages—

Temperature .....	100.92
Pulse .....	89.06
Respiration .....	25.6

Pulse Rate—

Over 100.....	15 %
Between 90 and 100.....	34 %
Between 80 and 90.....	27 %
Under 80.....	24 %

Temperature Curves—

Mild Course .....	29 %
Ordinary Course .....	60 %
Irregular Course .....	11 %

Typical Pulse Curve.....	57.2%
Pulse-Temperature Dissociation .....	62.7%

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## CLINICAL EVIDENCE OF POSTINFLUENZAL IMMUNITY.

From the University Service in Medicine, City and County Hospital of Denver.

R. J. McDONALD, JR., M. D., Denver.

The epidemiology, theoretical deductions, and practical applications suggest immunity to influenza and its complications.

The history of the disease, beginning as early as 1554, comprises a series of periods in which great pandemics alternate with periods of quiescence. The regularity of these silent intervals is striking.

From the time of the first record, the disease has been very constant in its visits. Definite pandemics arose in 1712, 1743, 1762, 1782, 1833, 1847, and 1889, the character of which leaves no doubt as to their relation

to the recent scourge. It is interesting to note that the interval between pandemics is usually twenty to thirty-five years—an interval during which, perhaps, a new generation of non-immunes is born. This is borne out by the statistics of the 1889-90 epidemic in this country which gives the greatest case-rate per thousand in the years of the new generation:

Ages 1-4 .....	315
5-9 .....	380
10-14 .....	370
15-19 .....	385
20-24 .....	325
25-29 .....	355
30-69 .....	280
70-74 .....	170

The percentage of population attacked varied from 15% to 53%.

The question of acquired immunity to the disease has evaded definite conclusion, and a review of the literature prior to 1918 ends with the statement that "one attack does not necessarily protect against a subsequent one."

However, during the recent pandemic there were many significant happenings which have awakened new interest in the question. Of these, the following seem to be of greatest consequence. The therapeutic trials with immune sera by Ross and Hund confirm the theoretical grounds for its use. In twenty-eight cases treated with transfusions of convalescent serum, the mortality was only 21.4%; 42% of the control cases, treated symptomatically, died. Kuhn reports on twenty-five cases with "clinically grave prognoses, toxemia, dyspnea and extensive lung involvement, of which 48% died". McGuire and Redden conclude from their series of one hundred and fifty-one cases that "pooled serum has greatly reduced mortality, shortened the course of the disease, and has proved almost a specific".

These practical applications of theoretical beliefs, although the trial cases were few in number, indicate the presence of antibodies in the blood stream of patients convalescing from influenza. The length of time that the antibodies remain there is still an open question, but the incidents which follow seem to indicate that it extends through at least one year.

Hamilton and Leonard relate a very interesting and striking account of a recurrence of the epidemic in the State Training School for Girls, at Mitchville, Iowa. The school housed one hundred eighty students in six cottages. The first epidemic in November, 1918, was limited by strict isolation to Cottages 2, 3, and 4. After the middle of that month the institution was entirely free from influenza, due to the rigid quarantine, until another outbreak on January 8. This second epidemic was practically limited to the cottages that had escaped the November visit. They conclude that "the outstanding feature of the epidemic was the fact that those who had recovered from influenza were immune to the second attack of the disease. This evidence tends to prove that immunity to influenza can be acquired by having an attack of the disease, and that the duration of this acquired immunity lasts at least two months.

Scoccia relates that epidemic influenza swept down on the Spezia Hospital during the months of May and June, 1918, attacking every one of the eighty nurses and male attendants. Late in September, the epidemic returned, more severe than ever, but it spared all the nurses. Not one was affected. The conclusion seems obvious that the first attack left an immunity which in this case extended over a period of three months.

Mention is made by Falcioni of a certain orphanage in Rome which had escaped the epidemic until January, 1919, when one hundred of the one hundred and twenty inmates developed the disease. Of the twenty who showed no symptoms, sixteen had been recently orphaned by the death of their parents from influenza; two others had had the disease at another institution a few months before; the remaining two seemed to possess a natural immunity. There have been three outbreaks of the epidemic in Rome, and each time it seemed to spare those who had had the disease before.

The onset of the last wave of the epidemic in January and February, 1920, allowed us an opportunity to observe for ourselves the extent of the recurrence. A study of cases entering the City and County Hospital of Denver during that period revealed surprisingly few second attacks. The series included one hundred and forty cases with

careful, clinical diagnoses of influenza. Each patient was questioned as to a possible previous attack of the disease with the following results, in summary:

Four patients reported a mild attack during the 1918 wave of the epidemic (these patients were ill only one to three days); five patients reported having had attacks which were called influenza the preceding winter, but which they admitted bore no resemblance to their second attack; one case described four previous attacks in the last year, all of which were mild; another reported two mild attacks one month apart, neither of which was as severe as the last illness; one told of a similar severe attack in 1917; six gave clear histories of attacks during 1918, but even in these cases the diagnosis is necessarily uncertain. It can be seen that in all the eighteen above described cases, the diagnosis of the first attack was not confirmed. The maximum recurrence, if all of these cases were included, would be twelve percent. However, it is justifiable to rule out twelve of these because of the description given of their former attacks. The remaining six may be classed as second attacks—less than five percent of the series showing a recurrence.

Considering that fifteen to twenty-five percent of the population had had influenza prior to January, 1920, the proportion of second attacks should have been much greater if no immunity had been acquired. There is then reasonable ground to draw the following conclusions:

- (1) That the intervals of quiescence between pandemics suggest an acquired immunity to influenza in that generation.
- (2) That therapeutic trials with convalescent sera have shown the presence of antibodies at least three weeks after the attack had subsided in the donor.
- (3) That the experiences of Hamilton and Leonard, Scoccia, and Falcioni indicate an acquired immunity to influenza the duration of which is at least from two to three months.
- (4) That the proportion of second attacks during the recent wave of the epi-



demic suggests an acquired immunity which lasts at least one year.

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## News Notes

Dr. W. A. Jolley of Boulder, who has been connected with the Board for Vocational Education at Denver, was promoted by the government the latter part of August and has gone to Philadelphia where he will be engaged in similar work.

It is interesting to note that in a press report of an osteopathic clinic formed in Boulder one J. E. Ramsey is spoken of as being in charge of artificial surgery.

It is understood that the Colorado School of Tuberculosis was opened in Colorado Springs September 10, with a complete program of lectures and laboratory periods to cover a course of six weeks. The officers of the school are: President, Gerald B. Webb; Managing Director, Philip A. Loomis; Secretary, G. Burton Gilbert; Treasurer, Henry W. Hoagland. The list of directors and instructors comprises quite a large number of Colorado Springs physicians.

The thirty-ninth annual medical report of the hospital department of the Colorado Fuel and Iron Company states that 8,736 cases have been treated at the Pueblo hospital and 131,456 by the entire medical system of the company. Aside from influenza, contagious diseases became dangerous in only one camp in the entire year, that being in a district where strict quarantine was hard to maintain.

At the time of the collision on the Denver-Boulder Interurban line, who were called upon to care for the injured, regular physicians or chiropractors?

According to announcements by the War Department in Washington, six Denver men are contained in the list to whom commissions in the United States army have been granted. Roy Kimbrough Ogilvie, of Denver, was commissioned a major. Lucius F. Wright, Joseph Hall Whitney, Danial Benjamin Williams, Patrick J. McKenzie and John A. Maston, all of Denver, received commissions as captains in the medical corps.

Dr. William W. Yard has been named as director of the Department of Health Service of the American Red Cross and will have charge of the work in Colorado, Wyoming, Utah and New Mexico, with headquarters in Denver.

An assistantship or partnership with a surgeon in Denver or Boulder is wanted by an out-of-town physician and surgeon, who has had seven years' practice. The doctor's name may be obtained from the editor.

Dr. Walter M. Dake of Denver, who has been

in steady practice for forty-three and a half years, has decided to retire from practice on October 1. For the next six months he will have his residence at Palmer Lake.

The desirability of having a medical man on the Board of Regents of the State University will be recognized by all physicians interested in medical education. Dr. O. S. Fowler of Denver is a candidate on one of the party tickets for a six-year term on the Board, and from the standpoint of the profession's interests it would seem that party lines might well be ignored when considering the fitness of candidates for this office.

Col. W. H. Moncrief, the new commandant at the recuperation hospital at Aurora, is expected to arrive and assume his duties about September 21, relieving Col. Henry Page, who goes to Omaha.

According to press reports, Dr. C. W. Plumb of Grand Junction has been offered the superintendency of the State Home and Training School for Mental Defectives, which is situated at Grand Junction and will probably be ready for occupancy by November 1.

The first annual reunion of the Eighty-ninth Division Medical Association will be held at Hotel Meuelbach, Kansas City, Mo., October 4, 1920.

### DEATHS.

The death of Dr. Edwin J. Rothwell, another of Denver's pioneer physicians, occurred at his home September 7, after a month's confining illness. Dr. Rothwell was born in 1842. He graduated in medicine at the University of Michigan in 1875, received his Colorado license in 1882, and has been identified with the Denver medical societies more or less since that time. He was made an honorary member of the Medical Society of the City and County of Denver in 1910.

Dr. A. R. Scott of Fort Collins, age 42, died at St. Luke's Hospital, Denver, on August 31. The cause of death is said to have been thrombosis, following an operation for hemorrhoids.

Dr. Edwin L. Fitch of Denver, age 60, died suddenly at his office in the Empire Building while treating a patient. Death is said to have been due to heart disease.

Dr. John Kenwood Dawson, for almost 10 years a practicing physician in Sterling, died suddenly at his home on August 8. The cause of death was some form of heart disease.

Dr. P. H. Heller of Pueblo died on August 3, at the age of 76. He was one of Pueblo's oldest practicing physicians. The cause of death was nephritis.

The following letter is published at the request of the writer:

To the Editor,

Colorado Medicine.

Dear Sir:

The July number of *Colorado Medicine* published during my summer absence from Denver, contains an article on "The Management of Ununited Fractures," written jointly by Dr. H. G. Wetherill and me. This paper was based upon a case referred to me by Dr. Walter M. Dake of Denver, in February, 1918, a short time before I was ordered from Denver and while I was on duty at the United States Army Recruiting Station here.

The preliminary operation was performed by me, and subsequent operations and care undertaken by Dr. Wetherill in my absence. Upon my return to Denver in July, 1919, we decided to report the case in order to show the difference in results obtained between the use of inlay grafts and that of



other splints and appliances, applied directly to the bone.

The paper was read at the 1919 annual meeting of the Colorado State Medical Society in Denver, and left with the secretary of the society at that time. The article was published during my absence from the city this summer. The proof was not read by me, nor did I have an opportunity of reviewing the paper after surrendering it to the secretary of the society at the time of this reading. Due to rather unsettled conditions, and to the fact that the paper was written by two of us, at different times, and that neither Dr. Wetherill nor I happened to be in Denver at the same time, and able to read either the finished paper or the proof together, prior to its publication, we unfortunately failed to give due credit to Dr. Dake for the excellent medical care which he gave in connection with our surgical procedures. Both Dr. Wetherill and I sincerely regret the failure to give Dr. Dake the credit due him, for this care, so essential to the successful result secured in this case.

Very truly yours,

CUTHBERT POWELL.

936 Metropolitan Bldg.  
September 8, 1920.

A four months' **Course in Public Health Nursing** under the joint auspices of the University of Colorado School of Medicine and the Colorado Fuel and Iron company, to be given at the Minnequa Steel Works and Hospital, with field work in Pueblo and mining camps, to extend over the period, September 20, 1920, to January 8, 1921, has been announced in a bulletin supplement of the University of Colorado, Vol. XX, No. 10.

## Book Reviews

### Thoughts of a Psychiatrist on the War and After.

By William A. White, M. D. Published by Paul B. Hoeber, New York, 1919. Price, \$1.75.

The author discusses the subject of the psychology of war under the headings "The Social Perspective," "The Psychology of Conflict; the Individual versus the Group," "The Integration of Social Groups—Culture," "Psychological Effects of War," "Psychological Causes of War," "Some Tendencies Quickened by War," "Individualism versus Socialism—Love and Hate," "The Socially Handicapped."

Man is naturally a fighter made so by his struggle with nature and his efforts to satisfy his instincts. As the race advanced and man became a gregarious animal he had to give up selfish ways of gratifying his desires and reacting to the environment and subordinate his own interests to the good of the group. This is part of the process of integration by which individuals have been associated for mutual welfare into families, tribes and nations.

This process involves the repression of many instincts and desires of gratifying them in a way that is at least not injurious to the group. This is known as sublimation. Those repressed instincts, however, and the primitive forms of the sublimated ones are present in our unconscious minds and when war breaks out they come to the front, man goes back to his primitive state and takes naturally to killing and destruction. This is regression.

The author develops this idea at some length and illustrates it by examples from biology. War in the past has at times been necessary in order to get the social organization out of a rut and give it

a fresh start. It has been the only way to inaugurate reforms, society having to be disintegrated and simplified before it can progress along new lines just as in reproduction of unicellular animals, the cell before it divides into two cells loses the differentiations in structure which it had acquired in its lifetime. "From this point of view we may see in the war the preliminary processes of rejuvenescence." "Development has as one of its aspects destruction, disintegration, of all that stands in its way." "It is as if development went on in a certain direction as far as it could go and then, because the limit had been reached in that particular direction, what had already been developed must be destroyed and a new start made toward a different objective."

The author advances a fairly good argument for a league of nations as being the logical conclusion of the process of integration. He says, "If this war makes at all for constructive ends, those ends will be the granting of a large measure of opportunity to all the handicapped peoples of the earth—the unfortunate among us, crippled in mind or body, or by industrial and economic repressions or racial, religious, or political prejudices and a like opportunity extended as between nations. Civilization which has been so taxed by the release of the primitive instincts in an orgy of destruction has, by the very clearing away of standards which had survived their period of usefulness and become static and therefore barriers to further progress—an unparalleled opportunity to rise to greater heights on the path to higher integrations, greater possibilities of co-ordinated action for the common good of all."

The book contains many interesting ideas, only a few of which have been mentioned. It should be of great interest to readers philosophically inclined.

C. L. P.

**The Medical Clinics of North America.** Volume 3, No. 6. (The Chicago Number, May, 1920.) Philadelphia and London: W. B. Saunders Company, 1920. Published Bi-monthly. Price per year: Paper, \$10.00; cloth, \$14.00.

This number of Medical Clinics of North America is composed of contributions by fifteen leading clinicians of Chicago. Dr. Louis Mix opens with a clinic on lethargic encephalitis and mediastinal tumors. Dr. Arthur F. Byford then discusses the more important errors in diagnosis. Infantile eczema is ably handled by Dr. Isaac A. Abt. This is followed by an interesting symposium on pediatrics dealing with the Schick test, pyelitis in children and high sugar feeding. Dr. Charles S. Williamson presents two cases, one of lymphosarcoma of the neck and the other of pernicious anemia with extreme dropsy. This is followed by a consideration of bronchiectasis with pulmonary hemorrhage and cholelithiasis with chronic jaundice, by Dr. James G. Carr.

Abscess of the brain is discussed by Dr. Peter Bassoe, and Dr. Robert Sonnenschein writes on some non-suppurative forms of headache. Three cases of cerebrospinal syphilis are described by Dr. Ralph C. Hamill. The clinic by Dr. Walter W. Hamburger on the differential diagnosis of cardiac and gastro-intestinal lesions with particular reference to pectoral and extrapectoral angina is well written. Dr. Joseph Friedman follows with a discussion of callous ulcer of the stomach and chronic non-suppurative enterocolitis. A praiseworthy contribution on the care of premature infants by Dr. Julius H. Hess follows. Dr. Milton Portis closes this number with two cases of syphilis of the liver simulating all stones. A valuable index to volume three is appended.

J. L. M.



# Colorado Medicine

OWNED AND PUBLISHED BY COLORADO STATE MEDICAL SOCIETY

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## Editorial Comment

### THE PHYSICIAN IN POLITICS.

The world war has overthrown many a cherished tradition. Our viewpoint on affairs, social, political and economic, has undergone change. Our historical aloofness from old world politics is now the controversy of the hour. The changed attitude of capital toward labor is startling to our older statesmen.

The medical profession is no exception to the altered state of affairs, and it is beginning to revise and modify some of its outworn habits and customs. One of them is our traditional detachment from what we deemed vulgar strife of political partisans. We considered our profession too sacred to be contaminated with the usual sinister side of practical politics. When in exceptional cases we approached the legislators with a bill in the interest of public health, our motives were misinterpreted, we were denounced as a medical trust and our request was turned down. No wonder that we crept back into our shell of splendid isolation, comforting our conscience with the consolation that if the public will not accept what is good for it, it is no fault of ours.

Of late, however, doubts arise in our minds whether we have really approached the public. The average legislator is no criterion. Have we not wrapped ourselves in a mantle of mystery? The people at large are intensely interested in medical matters, and follow with zest every discovery and advance in medicine. They will surely listen to a message with a punch. We must have more publicity. All the medical "isms" parade their vagaries in the public press and denounce scientific medicine. Propaganda

won the last war, and proper publicity on our part should set the public right.

A great deal is expected from the Committee on Public Policy and Legislation of our State Medical Society. Undoubtedly they will meet frequently during the year and, not like some of our committees, a few minutes before the house of delegates calls on them for a report.

The best work in this direction must be done by the individual physician among his patients and friends. The medical profession, with its representatives in every town and hamlet, is potentially a great power. Unfortunately through long inertia it does not become kinetic. Theoretically, it could carry any measure it advocated for the public good, for the doctor is a potent moral force in his community.

Now is the time to put the theory into practice. Three measures are to be voted on by a referendum to the people at the next election, two positive and one negative. We must help pass the educational bill for raising the pay of our university instructors. This applies both to general as well as to medical education. Failure of the bill will probably mean the extinction of the medical school which, in spite of shortcomings, has been a stimulus to scientific medicine. We must also support the measure to institute a psychopathic hospital. Lastly, we must kill the chiropractors' attempts to have their own licensing board and assume responsibilities over human lives for which they are totally unprepared.

If the individual physician by his missionary work can effect a successful outcome of this program, the medical profession will be encouraged to proceed further in its laudable ambition to make the country safe for the health of its citizens.

P. H.

### S. O. S.

Aristotle is reputed to have been asked how much educated men are superior to those uneducated, and is said to have replied: "As much as the living are to the dead."

That is a neat little epigram to have come down to us through twenty-three centuries; and the striking thing is that it is dead true today, and will be just as true Tuesday, November 2nd (Election Day) as it was on the Saturday night that Aristotle said it.

On Election Day education will get either a boost or a black eye in Colorado, according to whether the Educational Amendment goes through or falls through.

And here is the simple appeal of the Amendment:

The Educational Amendment provides that the General Assembly may authorize an additional levy of one mill for the support and betterment of the State Educational Institutions. At present the constitution limits the total levy to four mills per dollar of valuation. If the Amendment goes through, this levy will not be exceeded in general taxation, but one additional mill may be levied when necessary for the support of the institutions of higher learning.

The additional mill is most urgently needed by the colleges. Their incomes were fixed by the General Assembly in 1917. Since that time the enrollment has increased from fifty percent in some colleges to one hundred percent in others; and in all of them the dollar has, of course, diminished. Their plight is deplorable, and it is only by capitalizing the loyalty of the faculty that the colleges have maintained themselves. Three of the principal colleges of the state have between them fifty-seven faculty members who have been offered higher salaries at other institutions. While other states offer them increasing salaries, we can offer them only increasing thanks. It is unfair to a noble profession that we should ask our educators to starve for the love of their work.

But the passage of the Educational Amendment is necessary not merely to provide university professors with a decent salary; its passage is imperative if the colleges are to be kept open. The income of the col-

leges must expand as they themselves expand. Fixing the income of a college may in the end fix the college. C. S. B.

### CHIROPRACTORS DEFINE THEIR FAITH.

When a cuttlefish wants to get away it squirts a sort of ink and backs out. When a quack wants to avoid telling how little he knows he squirts ink in a similar way. Here is an extract from the legal "definition" of chiropractic, put into the bill passed in New Jersey to allow people who know nothing of disease to treat disease. The fake definition, which cannot be understood, because it does not mean anything, reads in part:

"The term chiropractic when used in this act shall be construed to mean and to be the name given to the study and application of a universal philosophy of biology, theology, theosophy, health, disease, death; the science of the cause of disease, and the art of permitting the restoration of the triune relationships between all attributes necessary to normal composite forms, to harmonious quantities and qualities by placing in juxtaposition the abnormal concrete positions of definite mechanical portions with each other."

There is just one point that shows clearly out of that jumble of words: it says among other things that chiropractic is a "philosophy of . . . death."

—Monthly Bulletin, The Federation of State Medical Boards, quoting The American Citizen.

### ANOTHER TRAGEDY OF INCOMPETENCE.

Cases continue to accumulate in which disastrous results have followed the attempts to treat sick persons by those who have not obtained a thorough grounding in the fundamentals of medicine.

The latest instance, reported from South Dakota, is that of a child 2½ years old, suffering from a disease giving pronounced symptoms of cerebrospinal meningitis. Under the care of a physician the patient was progressing favorably when the case was transferred to a chiropractor, who had promised a cure in a few days' time. The report



states that this practitioner began to give the usual chiropractic treatment when a decided change for the worse set in and the child died three days later. A report of an interview with the chiropractor intimates that he was not familiar with the disease he was treating.

When will the public understand that no one without a thorough grounding in the fundamental medical sciences can be safely trusted to treat human diseases, many of which are of so serious a character? Why, indeed, are legislators willing to pass laws granting chiropractors, osteopaths and other cultists the right to attempt to treat human ailments unless they possess the educational qualifications which physicians are required to possess? To fix lower educational qualifications for practitioners of these cults is not only a discrimination against physicians but a most serious injustice against the public who have the right to expect that only those competent to treat human ailments will be legally permitted to do so. Any good that there may be in a chiropractor's methods of treatment will in no way be decreased if he is required to have a sufficiently thorough training to enable him to recognize the disorders he may attempt to treat. So long as those who are incompetent are permitted to practice, so long will there be such tragedies as the one just described which, under more competent care, could evidently have been prevented.

—Monthly Bulletin, The Federation of State Medical Boards of the United States.

### UNIMPINGED NERVE.

The initiated Bill to Establish a Board of Chiropractic Examiners contains a bevy of niggers in the woodpile. It grants a special chiropractic examining board, though such a board has no legitimate reason for existing. It grants licenses automatically to chiropractors who have been practicing illegally for a year in any one county of the state. It grants to chiropractors "all the rights and privileges and immunities by law extended to physicians and surgeons in this

state," except the right to practice obstetrics, perform surgical operations and prescribe medicine to be taken internally. This permits the chiropractor, without preparatory training, to administer anesthetics, to treat venereal diseases, to fit eye-glasses, to treat poison cases and insanity, to give drugs hypodermically, and in a hundred ways to endanger the life of his patient. He is then permitted to sign the death certificate, stating the cause of death, which his training does not permit him even to conjecture.

Such a preposterous bill can pass only by reason of apathy on the part of the medical profession.

—Denver Medical Bulletin.

### CANCER WEEK NOVEMBER 14-20.

The Colorado Committee of the American Society for the Control of Cancer has selected the week of November 14-20 for a campaign of publicity throughout Colorado on the subject of Cancer. It is planned to hold demonstration clinics on the diagnosis and operative treatment of malignant tumors in the hospitals of the larger towns in the state. County Medical Societies are requested to devote a meeting to a symposium on the various phases of Cancer.

Particular attention will be devoted to publicity among the laity. Lectures will be held in churches, as well as at Woman's Clubs, Mothers' meetings, before fraternal orders, etc. The co-operation of the profession is earnestly solicited. For detailed information address Dr. Philip Hillkowitz, Metropolitan Building, Denver, Colorado.

THE CHIROPRACTORS WANT A NUMBER OF THE USUAL PRIVILEGES OF PHYSICIANS, SUCH AS REPORTING DEATHS AND DIAGNOSING AND REPORTING CONTAGIOUS DISEASES. IF YOU CONSIDER THEM QUALIFIED FOR THOSE ACTS, YOU MAY SIT IDLY BY AND SEE THEM GET WHAT THEY WANT.

MOST OF THE PROPOSED STATE LEGISLATION WHICH WE ARE CONCERNED WITH AS A PROFESSION IS IN THE FORM OF INITIATED MEASURES. USE YOUR INFLUENCE WITH THE VOTER—THE LEGISLATURE IS WITHOUT POWER IN SUCH MEASURES.

## *Original Articles*

### THE FUTURE OF MEDICAL EDUCATION IN COLORADO.\*

CHARLES N. MEADER, A.B., M.D., DENVER.

During the nine years which have elapsed since the union between the Denver and Gross College of Medicine and the University of Colorado School of Medicine, with the continuance of all medical education in the state in the charge of the latter, the medical faculty have continuously looked forward to the time when it should become possible to place the school in a thoroughly sound position with adequate teaching plant and equipment. During the past year, in the hope that the time is at hand when such expansion can be carried out, the present needs of the school, its possibilities and its future have been subjected to careful analysis by the Board of Regents, the President and the members of its faculty. This analysis has emphasized the strategic position which Colorado occupies as a possible strong center for medical education and the great community service of which such a center is capable. These, it has seemed, should be of immediate interest to this meeting.

Lest the impression has been given that the school has fallen behind during these years I may cite the fact that there are at present eight full-time men on the faculty compared with two in 1911, and that the budget for the current year amounts to \$46,000 compared with an expenditure of \$16,500 in 1911. A steady improvement along all lines has been shown, but by comparison with the needs of modern medical education and with the standard which Colorado should set, dissatisfaction with the present and a striving for extensive improvement for the future are warranted.

One of the fundamental questions to be settled is whether or not the teaching of medicine is a proper function of a state university. Manifestly it is a vitally necessary form of higher education, for it is vitally necessary to the life and commercial prosperity of any community that its health be

efficiently guarded by preventive and curative medicine. Medicine is the least self-supporting branch of higher education. At the University of Colorado fees received from medical students average only about fifteen percent of the total expenditures of the medical school, and this large disproportion between income and outgo is close to that obtaining in other Class A schools. It is a generally accepted principle that furnishing education at an apparent financial loss must eventually be a function of the community, municipal or state. The loss is only apparent, for the educated man returns to his community a value many times greater than the cost of his education. Nevertheless this return is gradual and often insusceptible of mathematical computation, while the excess of outgo over income is immediate and must be met, if sound medical education is to be provided at all, either by individuals of far-sighted philanthropy or by the citizens of the state who are eventually benefited. A combination of these means is eminently desirable, but in the long run the interests of stability and justice are better served if state support is preponderant. It should be evident that medical education is an eminently proper purpose to which the funds of a state may be devoted, and it requires no great gift of prophecy to predict that, with the mounting costs of such education, state universities will within a measurable number of years guide the training of a majority of medical students. The trend in this direction during the past few years is graphically illustrated in Table 1, in which the percentages represent the proportion which the number of students enrolled in state university four-year schools bears to the total of all medical students:

TABLE 1.

Percentage of Medical Students Enrolled in State University Medical Schools by Years.					
Year.....	1914	1915	1916	1917	1918
Percentage..	15.6	16.2	17.8	19.0	20.9

A second fundamental question which must be met is whether or not it is justifiable, viewed either from the standpoint of medical education in general or from that of the interests of this state, for the University of Colorado to undertake the considerable additional expense of equipping and maintaining a thoroughly adequate school.

\*Read at the annual meeting of the Colorado State Medical Society, September 7, 8, 9, 1920.



In arriving at such a decision it is helpful to recall the close analogy between a medical school and a manufacturing plant, which in the last analysis the school primarily is, though its higher functions far exceed this. If one considers the advisability of establishing a new industry or of expanding and strengthening a going concern, the underlying factors which merit attention are the supply of raw material, the nearness and strength of competing plants, and the need and demand for the product. For our purpose the supply of raw material is represented by the number of prospective medical students in Colorado's natural territory; the nearness and strength of competing plants by the nearness and strength of other medical schools, and the demand for the product by the need for well-trained physicians in Colorado. A fourth factor—service to the community other than by mere supply of finished product—is of slight importance in the case of a manufacturing industry but a prime factor in the usefulness of a medical school.

Supply of raw material: During the years from 1914 to 1918, inclusive, 523 students from Colorado were in attendance at medical schools, of whom 290, or 55.4%, attended the University of Colorado. Had all remained here the size of our classes would have been nearly doubled. The potential field outside the state from which a strong school here would draw is indicated by the map and by Table 2:

TABLE 2.

Number of Medical Students Enrolled in Medical Schools in the United States From:

A. States immediately tributary to Colorado.					
B. States less directly tributary.					
C. States A. and B. (Total enrollment by years.)					
A.					
Year. . . . .	1914	1915	1916	1917	1918
Colorado . . . . .	87	95	107	116	118
Wyoming . . . . .	11	8	6	8	4
Utah . . . . .	55	80	86	94	105
New Mexico . . . . .	7	8	11	9	11
Total, A. . . . .	160	191	210	227	238
B.					
Oklahoma . . . . .	128	115	130	116	98
Kansas . . . . .	241	236	226	246	290
Nebraska . . . . .	277	248	251	261	267
South Dakota . . . . .	50	54	51	65	74
Montana . . . . .	30	23	27	38	37

Idaho . . . . .	36	21	33	34	33
Arizona . . . . .	16	13	12	11	11
Total, B. . . . .	778	710	730	771	810
C.					
Total, A. and B. . . . .	938	901	940	998	1048

The figures of the table may be summarized as follows: During the years under consideration the states immediately tributary to Colorado, none of which have four-year schools, with Colorado herself furnished a yearly average of 205 medical students. During the same period the seven states less directly tributary, of which three have four-year medical schools, furnished a yearly average of 760 medical students. In summary, then, during this five-year period twelve states more or less directly tributary to Colorado, including Colorado herself, furnished a yearly average of 965 medical students, of whom a yearly average of only 58, or about 6%, came to the University of Colorado. The states mentioned may fairly be regarded as potential Colorado territory in medicine, as they are actually Colorado territory in commerce. Colorado manufacturers send successful salesmen throughout this region and patients from every part of it frequently come to Colorado for consultation. It may be objected that it is not the province of this state to furnish medical education at a loss to students from surrounding states. This objection is partially met, as at present, by the imposition of higher tuition fees upon non-resident students, and with a strong medical teaching center established would be nearly or completely met by the funds spent within the state by students and by patients attracted hither by its reputation, leaving the improved teaching of Colorado students as a net gain.

The number and nearness of competing plants may best be indicated by the accompanying outline map showing the location of medical schools west of the Mississippi River. Between Colorado and the Mississippi there are 15 Class A schools, of which four give only two years. The four-year schools are located in Minnesota, Iowa, Missouri (2), Louisiana, Texas (2), Oklahoma, Kansas and Nebraska (2). The two-year schools are located in Missouri, Arkansas, North Dakota and South Dakota. With three exceptions these schools are in each

case situated at or near the furthest eastern boundaries of their respective states. Between Colorado and the Pacific coast there is one two-year school, located at Salt Lake City. On the Pacific coast there are two Class A schools at San Francisco and one at Portland, Ore. It is evident that Colorado is in a position of considerable strategic importance midway between what may be termed the Middle Western schools and those of the Pacific coast, with practically no local competition in its natural field. With a few exceptions these are all strong schools. Colorado's opportunity rests upon geography rather than upon any weakness in her competitors.

The demand for the product of such a plant, represented by the need for well-trained physicians in Colorado, is not susceptible of accurate measurement. Two sets of facts are, however, highly significant. According to the last issue of the American Medical Association Directory, that of 1918, there were 1,713 physicians in Colorado, of whom 451, or 26.2%, were graduates of Colorado medical schools. In the same year there were 682 physicians registered in Denver, of whom 228, or 33.4%, were graduates of Colorado schools. In other words, this school is potentially the source of supply of over one-fourth of the physicians of Colorado and of one-third of the physicians of Denver, and the quality of medical skill in this large proportion of the profession of the state is directly dependent upon the quality of instruction given by this school. It seems unnecessary to add that a similar proportion of our population, present or prospective patients of these physicians, have a literally vital interest in insuring that this instruction be both thorough and ample. In an effort to secure further light on this question of demand, the senior class of this year has been interviewed to learn how many openings each man had. Counting but once positions offered to more than one man, eighteen graduates were offered thirty-four different positions. In addition to these there have been received at the school since January 1, 1920, seventeen applications for physicians, none of which has been filled by students. A total then of fifty-one positions, a majority of

them in Colorado, have needed the services of trained physicians since January 1st, and to fill them we have graduated a class of eighteen. That these positions are not unattractive from a financial standpoint is indicated by the fact that those not filled ranged in probable returns from \$175 to \$400 a month, with an average of about \$250. This might be regarded as a post-war condition, but our graduates were in demand prior to 1917, and the end of the war is sufficiently far in the past to warrant the belief that this is a factor of relatively slight importance.

It has been said that incidental service to the community, other than by the mere output of well-trained physicians, is a factor of prime importance in the usefulness of the medical educational plant. Indeed, a state medical school may be so organized and conducted that such incidental usefulness becomes its greatest service. To follow again our commercial analogy, we would utilize the by-products of our plant, and many a manufacturing concern pays its dividends from its by-products. In the first place, the State Hospital which serves as the clinical laboratory for faculty and students alike should have as its aim, not solely the teaching of medical students, but the relief and cure of disease among that large number of indigent and semi-indigent citizens of the state now cut off, through no fault of their own or of the county physicians who attend them, from adequate modern methods of diagnosis and treatment. That such service is attainable by a simple legal mechanism, that it is feasible, that it is highly appreciated by the citizens of the state, both patients and taxpayers, and above all that it results in great economies of both state and county, is amply proved by the experience of Michigan, Iowa, Minnesota and Nebraska, where sick and crippled children and ill or injured adults over-crowd the state university hospitals, the demonstrated value of which has enlisted the support of the citizens of these states almost unanimously. Such a service is not merely humanitarian; its return to the state in restored producing ability and removed indigency are enormous.

Another service to the state, already well developed in many state university medical



schools and now performed by the University of Colorado so far as its equipment permits, is one to which state schools of agriculture, mining and engineering have pointed the way. It is that of acting as a centralized consulting authority in the problems of the community arising in its especial field. Such co-operation and service may be rendered to communities in their corporate capacity through state or local boards of health or to the individual citizens of the state by advice and counsel. This function may perhaps be most obviously served by the laboratory departments, but there are many problems of health conservation and of reconstruction in which the clinical departments can be most helpful. With improved facilities this service might be almost indefinitely broadened and strengthened.

Even more definite and more useful than the service which a strong medical school may render the citizens of the state at large is that which it can afford the medical profession itself. The very presence in a state of a strong medical school, sending out thoroughly trained graduates, is an important factor in strengthening the hands of its physicians and in keeping standards of practice high. The confidence of patients in the medical profession is enhanced; fads and quackery find a less ready following, and the beneficial stimulus of competing with more and more well-trained men is felt by us all. The service of such a school to physicians must be still more concrete, however. It is no criticism of the busy physician, harassed by insistent calls of patients, that he cannot find time or mental energy to sift out and evaluate the evidence regarding new methods of diagnosis and treatment, perhaps arising from several special fields; on the contrary, we mark as progressive and worthy of especial confidence the man who, by attendance at meetings and periods of study at teaching centers, seeks to keep pace with the development of his subject. On the other hand, the medical teacher, wholly or partly secured from the distractions of private practice, owes it as a part of his duty not only to keep abreast of new work and to test its value in his laboratory or clinic, but also to contribute to medical progress

such fragments as he is able. It is the difference in aim and purpose, not in mental capacity, which lends to the medical faculty its value as a teaching and advisory body, both for the community as a whole and for the medical profession. So the establishment of so-called post-graduate courses, where new or special methods in various fields can be critically studied and taught, is a most important service to the profession and one which, fully developed, will be most useful in raising the general level of medical information. The University of Colorado is already offering such courses, which are increasingly in demand, in its laboratory departments, but the limitations imposed by its lack of plant and equipment are severe, and similar courses in clinical subjects, for which the demand and probably the need are much greater, cannot even be attempted.

It is perhaps premature to even touch on the service which might be rendered by the establishment of carefully arranged courses extending over several years, preparing for special practice in some one field and leading to a higher degree in that subject comparable to our present course for the degree D.Oph. Such courses are rapidly becoming the natural and recognized road to special practice and should, as rapidly as possible, be made widely available. They cannot, however, be attempted by any but a strong school, thoroughly equipped and manned in the fundamental sciences and provided with ample and completely controlled clinics, the whole unified into a smooth-working machine.

Granted that these services are necessary and desirable to the state, what are the needs of the University of Colorado to enable it to furnish them? These may be summed up briefly as follows: A laboratory building or buildings, adequate in size to accommodate our classes, containing considerably more ample equipment than at present, and manned by a full-time faculty sufficiently numerous not only to properly conduct routine teaching for undergraduates, but to enable each to devote reasonable time to graduate teaching, study and investigation. On the clinical side no permanent progress can be made until a hospital of suf-

ficient bed capacity to provide that variety of disease conditions which is indispensable to good clinical teaching, and properly equipped to furnish facilities for modern diagnosis and treatment, is available to the school under its complete control. Such a state hospital as has been touched upon would admirably serve the double purpose of public health and medical instruction; short of it clinical teaching cannot go forward. These requirements are not idealistic; they are the minimum improvements which the school must have if it is even to maintain its present standards.

The thought is inevitable from this bare outline that the present school of medicine is but a nucleus. In a sense this is true, but it is a nucleus which, thanks to the splendid and unselfish devotion of its faculty and the inextinguishable optimism of many among them, has done remarkably efficient work despite tremendous handicaps. Such devotion and optimism cannot, however, indefinitely survive unfavorable conditions, and the school has reached the point where it must move either forward or backward, in either case rapidly. Its territory is a wide one and without near competition; the raw material is available; the demand for its product and its present service to the state are great, while its possibilities for future services are, if properly supported and developed, tremendous. Without such support it must retreat, losing the ground it has gained at great effort and sacrifice. The decision rests, not with the regents and president of the university, nor with the faculty, but with the citizens of the state, and especially with you who are members of the medical profession, whose voices in its favor or in its disparagement will be received by the citizens as authoritative and whose silence will be interpreted to mean that the school is not worthy of your effort nor of continued life.

#### DISCUSSION.

**T. E. Carmody, Denver:** I believe that this paper should have a great deal of discussion. It is timely in its presentation, and I see no reason why we should not support our medical school whether we are connected with it or not. Many of you have received this little pamphlet from the State University; how many of you have read it, I don't know, but there are a great many facts in this that should be brought before the community in gen-

eral, and I believe that it is up to this body to do what it can. We are to have an amendment come up for vote this November, and it will depend upon the vote we make upon it whether the legislature can appropriate enough for the State University in general. This will help the medical school at the present time. There are other sources of income for the medical school that we hope to get later which will help out a great deal more, but it needs this at the present time and the whole university needs it.

So far as the University of Michigan and the University of Iowa are concerned, Dr. Vaughan can tell us a great deal about the University of Michigan, and the University of Iowa I visited recently, and I observed the way they conducted their medical school. It has helped the poor a great deal in that state, and our medical school could just as well be put on the same footing. We are opposed, we know, by drugless healers, chiropractors and others; a great many healers in this state object to anything which we wish, and if the medical profession does not stand united we are going to fail. I shall read some of the points from the pamphlet, because some of you may not have observed them closely:

"The present millage for the maintenance of the university, yielding about \$375 a year, was fixed by the legislature of 1917 before the war had 'kited' the cost of everything.

"Since then the student body has increased six percent. This increase has called for a larger teaching staff. The cost of labor on the campus has gone up sixty percent. The cost of materials, such as paper, lumber for repairs, coal, furniture, apparatus, laboratory supplies, etc., has increased one hundred to three hundred percent. Salaries have been increased a pathetic bit and are now about two-thirds of what is paid in state universities of similar rank. Salaries must be increased materially or we cannot retain our good men; we cannot maintain the present standard of our service to the state.

"How the enrollment in the university now compares with that before the war:

"Enrollment in the year 1916-17 was:

For Academic year (nine months) .....	1,427
For summer term (six weeks) .....	771
In classes in Extension Division .....	1,366

Making a total of .....3,564

"Enrollment in the year 1919-20 was:

For Academic year (nine months) .....	2,096
For summer quarter (three months) .....	1,727
In classes in Extension Division .....	1,818

Making a total of .....5,641

"This university has about one-fourth of the average of the student bodies in the universities of California, Illinois, Michigan, Minnesota and Wisconsin, and less than one-sixth of the average of the incomes of these institutions.

"This university has about one-half of the average of the student bodies in the universities of Texas, Iowa, Missouri, Nebraska and Kansas and about one-third the average of the incomes of these institutions.

"This university has two to four times as many students as the universities of Montana, Arizona and Wyoming and approximately the same income as they.

"Putting it in another way: In the last report of the Bureau of Education on the subject, the average cost per students in a representative group of universities was given as \$325 a year. For the year 1919-20 the cost per student to the state in



the University of Colorado, estimated by dividing the maintenance and building incomes by the enrollment for the nine months plus one-fourth of the summer quarter enrollments, was approximately \$200. This leaves out of account all who were enrolled in the Extension Courses, which would reduce it materially below that figure.

"The University of Colorado pays lower salaries than other state universities excepting two, and salaries in state universities are considerably lower than in endowed institutions of equal standing.

"The University of Michigan now pays to professors as much as \$6,250; California, \$6,000; Minnesota, \$6,000; Ohio, \$6,000; Wisconsin, \$5,750; Iowa, \$5,500; Illinois, \$5,500; Washington, \$5,400; Texas, \$5,000.

"These universities are planning to make further increases to the point where salaries will have the same purchasing value as they had before the war.

"In the University of Colorado the maximum salary for a professor is, with one exception, \$3,500, and the minimum for an instructor is \$1,200—this in the face of a great shortage of college teachers throughout the country."

Now there is a summary here that may mean a great deal to us:

"Is it any wonder that the university has already lost men who cannot be replaced and is threatened with a general exodus? Fortunately many of our ablest men are refusing more lucrative positions because they have faith in the future of the university. But that faith will have to be justified soon or there will be a general emigration of the faculty and the university will be so crippled and weakened by irreparable losses that the people of Colorado will have to seek in other states the right kind of educational advantages for their boys and girls.

"Even now, notwithstanding the most rigid economy of administration, notwithstanding that we are capitalizing the loyalty of our professors and employees instead of paying them living salaries, the university is incurring a considerable deficit and the other state educational institutions are in a similar plight.

"It lies with the legislature finally to supply the remedy. But under the present limitations it is not easy to see how the legislature can provide sufficient additional revenue. The legislature cannot increase appreciably the millage rates for state institutions because the state constitution fixes a limit of four mills on the dollar to levies for state purposes, and this limit has almost been reached. Under these conditions the promptest relief is to be had through a direct appeal to the people, and citizens of the state have, therefore, initiated an amendment to Section II, Article X, of the constitution, making it read as follows:

"The rate of taxation on property, for state purposes, shall never exceed four mills on each dollar of valuation; provided, however, that in the discretion of the General Assembly an additional levy of not to exceed one mill on each dollar of valuation may from time to time be authorized for the erection of additional buildings at, and for the use, benefit, maintenance, and support of the state educational institutions; provided, further, that the rate of taxation on property for all state purposes, including the additional levy herein provided for, shall never exceed five mills on each dollar of valuation, unless otherwise provided in the constitution."

"The adoption of this amendment would not of itself increase taxes one cent. It would merely permit the legislature to provide for the state edu-

cational institutions through additional levies from time to time.

"The institutions would still have to justify their claims to the legislature, but they would appeal not to a legislature with its hands tied but to a legislature with discretionary power to act.

"For the present, it is estimated that an addition of less than half a mill, or about four cents on each hundred dollars of assessed valuation will take care of the most pressing needs in our state educational institutions.

"If you believe that our educational institutions should be enabled to continue and increase their power to serve the state, will you not only vote for the amendment, but work for it in every way you can? To let our state institutions of higher education, in this critical emergency, run down at the heel would be an unthinkable calamity."

There is one further note sent out by the university that I wish to read:

"Per capita cost per year for higher education in twelve states: The cost in Arizona, \$1.51; Kansas, \$1.31; Wisconsin, \$1.22; Michigan, \$1.18; North Dakota, \$1.15; South Dakota, \$1.12; Montana, \$1.11; Utah, \$1.11; Minnesota, \$1.09; Oregon, \$1.09; California, \$1.08; Colorado, \$0.97."

I think it is up to the medical profession to try to help out the state university, and through the state university help our medical education.

**F. R. Spencer, Boulder:** I took advantage last week of the prerogative you had given me as your presiding officer to send out circular letters, not to members of this society alone, but to all physicians in Colorado. I enclosed a pamphlet asking each and every physician in the state to support the university bill for an increased mill rate. Unfortunately, the task of getting out this long list of physicians was rather a great one for one stenographer, and it did not go to the university office until Friday or Saturday. The letters were mailed Monday, too late for you to receive them before you came here, but I hope you will each find one on your desk when you get home and that you will make use of it.

Seeing Dr. Vaughan here reminds me of an experience he and President Angell had in the state of Michigan on one occasion. It seems that a number of men in the state legislature who were opposed to the university, thought they were paying too much money to the university and that the one-sixth mill rate was a little too high. Dr. Vaughan and President Angell went to Lansing and told these legislators that four was smaller than six, so the mill rate was changed from 1/6 to 1/4.

We will need to work hard to support this amendment. If we fail at the election in November the state legislature may say, "Well, you have put this up to a vote of the people, it has not carried and we cannot do anything for you." I believe if the medical profession will get behind this it will mean a great deal, not only to future medicine and surgery, but to higher institutions of learning of all kinds. This is not a bill for the University of Colorado alone, but a bill for all of our institutions of higher learning.

**Victor C. Vaughan, Ann Arbor:** I am very deeply interested in this subject. When the territory of the Northwest was formed in 1787 there must have been some very long-headed men on the committee that drew up the constitution. They wrote into that constitution the following phrase: "Religion, morality and knowledge being necessary to good government and to the happiness of mankind, schools and the maintenance of education shall forever be encouraged." Now, what has been



the result? I think that I am not oversanguine when I state that the spirit of those who wrote that constitution has continued and has prevailed in that section of the country. The universities of the states were formed as each state came into existence, and provision was made for medical education. It was questioned by the medical profession at large, and you can appreciate the antagonism that was manifested towards state education. I had a consultation in Philadelphia one day along in the eighties with a professor of one of the Cincinnati medical schools, and with a professor of surgery in Jefferson Medical College, and two or three other medical men, and they took the ground that the state had no right to provide professional education; they admitted that the state might educate boys and girls—of course, then it was only boys—but that the education could not be used in after life—that any information that a man might use thereafter was not important for the state to give. Now, we see what has been accomplished. Universities were formed in ancient times for the purpose of teaching or perpetuating some theological element. Then, there came a period when universities were created in order to perpetuate the name of some man. Finally, there came the state universities. And why did the state decide to give this education? For the purpose of making valued citizens. It pays the state to have good doctors, not shysters; it pays the state to have good engineers, not men who build bridges that fall down; it pays the state to have good lawyers who make good laws, not shysters who will advise people how to avoid the law and keep out of jail.

Now, medical education has become very costly. Dr. Carmody has said something about the cost. We have on the budgets for the medical school of the University of Michigan next year, for the school alone, \$276,000, and for the hospital \$320,000; and we are asking for the years 1921 and '22 an addition to the school, annual expenses of \$50,000, and about the same amount for the hospital. Now, the University of Michigan medical school is one of the oldest state medical schools, and what I am saying today I hope Colorado will profit by; that is profit by our mistakes and profit by what success we have made. You must serve the people of the state, and serve them in such a way that the people will appreciate it.

I have been dean of the medical school of the University of Michigan for twenty-nine years, and along in the eighties I began to urge an increase of the requirements for admission and the lengthening of the course.

The regents have passed a law, at the request of the medical faculty, that no man shall serve on the medical faculty in any capacity unless he gives it his whole time. This change is to be made gradually. We cannot throw out the men who came there under other conditions, who are making \$50,000 a year, but it is the policy of the future, that from the dean down, or whichever way you choose to go, every man has to give his whole time to the university.

We are trying to remedy another thing. The people who can pay, and these are in the majority, pay for their service in the hospital. We are today charging the people who occupy beds in the university hospital according to their ability to pay, and so far nobody has kicked. And another thing, they pay their bill to the hospital; they don't pay it to the professor of surgery.

And another thing: This came up actually last year during the influenza epidemic. As you know, the country districts, the villages, etc., haven't any doctors, and during the influenza epidemic I got a

dozen telegrams a day from the mayor of some little village or city, "We are having influenza and we haven't a doctor." At that time I took the matter in my own hands, and as soon as we could spare an interne from the hospital I said, "You jump on the train, go down to that town and notify the mayor there that I have sent you, and notify the nearest doctor that you are there to practice under his direction." And we sent men all over the state. There shall be no suffering in the state of Michigan that medicine can relieve permitted to go neglected. That is my idea; and this fall we are taking into the university hospital twice the number of internes that we really need with the expectation of sending them to different parts of the state to help out; and we get the co-operation of the doctors because the interne reports to the nearest legally qualified doctor.

Today, medical education has become so expensive that there are only two kinds of medical schools that can exist in the United States—privately endowed and state supported. So far as private endowment is concerned, I want to say that in my experience there are two classes of men who give to universities, and especially the medical schools, big, broad men, who give without any condition, and other men who always want a string tied to what they give. I think a state university, especially, should never accept gratuities from a man who expects to get something in return. We could have had many millions of dollars, if taken under those conditions. But I believe that in the long run state medicine is coming, and I have not a word to say against privately endowed medical schools. I think the idea is splendid, and I think Mr. Rockefeller's ceaseless millions that continue to flow into medical schools are wisely spent. Mr. Rockefeller is not going to give to state endowed institutions, and while they are going to exist they are going to be supported by the people. I hope that those who have in charge the medical school at the University of Colorado will not get discouraged. They will meet with many things to discourage them, but go ahead and do the best work that you possibly can—and you will have to sacrifice. We all work at the University of Michigan for a very small salary; we work under many difficulties, but things are improving. Dr. Carmody said that in Michigan we now are paying \$6,000 for our scientific men. We have just done a little better; we are paying some \$7,000. That is not a big salary nowadays, but it is a great improvement upon what it was, and they have an opportunity to do good work.

**Dr. Meader:** If this paper has done nothing else than to elicit the talk from Dr. Vaughan, I think it has certainly been worth while. Dr. Vaughan is always full of information and inspiration, and I only wish he were here at hand so that we might get the benefit of his advice when we need it.

I am very glad that Dr. Carmody has brought out these other facts in discussion. I think that through Dr. Spencer, or through some other source, you will all have an opportunity to read the pamphlet for yourselves, and I hope that you will all feel that you can support the initiated amendment. The institutions of higher education are desperately in need of such support. The figures Dr. Carmody has quoted demonstrate this. The situation is critical, not alone for the University of Colorado and its school of medicine, but for the School of Mines, the Agricultural College and the Normal School; they are in equally dire straits with the university and our plea is not a selfish one.

I wish to point out that there are two separate



propositions involved in the problem of relief and that the medical school faces a special additional problem of its own. First, the passage of this bill will not, in itself, give the university one additional dollar of income. It will simply authorize the legislature to appropriate additional money if it believes the need exists. Second, if the educational amendment passes, the legislature must still be convinced that higher education needs additional funds. In order to conserve our institutions of higher education it is accordingly necessary for each one of you to use not only his own vote but also his influence upon the votes of his friends and patients, first to support the educational amendment which will stand or fall by vote of all the people, and second to encourage the legislature, when it convenes, to appropriate as much of the money thus authorized as may be necessary to afford adequate relief to these institutions. Support both by the people and by the legislature is vital to success.

The carrying out of this program will give substantial aid to all of these schools, including the university, and through the university to the school of medicine. Unfortunately this school, in order to attain the position which we all desire for it, will require much larger funds than are likely to be available as its just share from the present project. It has a loyal and efficient faculty but it desperately needs buildings, equipment and adequate hospital facilities. These things cost a great deal to provide and a great deal to maintain, especially in a state which we are in the habit of considering relatively poor, with a relatively small population, scattered for the most part rather widely. Moreover, good roads, tunnels, and many other expensive needs clamor for first place. The pressing needs of the school must be met, however, and that soon, if sound medical education is to continue.

The regents of the university, the president, and the faculty are working on a plan which it is hoped may provide a means of financing such a program of extension and improvement. There is nothing definite to be announced at this time regarding these plans but it is to be hoped that they may ere long come to something. If they do, we shall need the active support of every man and woman in the state, and especially of the medical profession, and I hope that when this time comes we may be able to count upon you.

**Henry Sewall, Denver:** I rise to a point of disorder. This society has a way of getting up a splendid head of steam in the form of good resolutions which is later dissipated from a leaky boiler. I want to put before the House of Delegates and yourself, Mr. President, the question whether you can not get a live wire committee to confer together to see if we cannot conserve all the energy which we have gotten up here today.

**President Spencer:** This was seriously considered yesterday noon. We believe we have such a committee, and this is going to be taken in hand with a great deal of vim and vigor; I believe we will get results. It has been suggested by one of our ablest members that the physicians over the state take an active interest in this—and this certainly applies to you. We cannot appeal to all physicians, because some of them will not come into our society. If you will take the little pamphlet gotten out by the university office and take it to your newspaper editors asking them to publish it, you can have a big influence in the community in which you live. It will mean more by far to hear from you directly than it will to hear from the university office or some other office.

The people are more vitally concerned with the

welfare of things which concern their friends than with the welfare of someone whom they do not know personally.

## THE NEED OF A PSYCHOPATHIC HOSPITAL IN COLORADO.\*

GEORGE A. MOLEEN, M.D., DENVER.

That mental disease is assuming such proportions as to be viewed as a rapidly growing menace in this country—in which Colorado freely participates—is a fact beyond controversy.

The last federal census of 1910 enumerated 187,454 persons in institutions for the insane within the United States. It was determined that this was in excess of the number of students in all the colleges and universities of the country at the time; it exceeded the number of officers and enlisted men in the United States army, navy and marine corps in 1910; exceeded the population of Columbus, Ohio, the twenty-ninth city in size; and amounted to about seventy-five percent of the population of Denver.

About 30,000 new cases of mental disease are admitted to institutions in the United States each year and the annual increase in the number of patients under treatment is about 6,000.

It has been stated by the National Committee for Mental Hygiene that if all the states provided for their insane as adequately as do New York and Massachusetts there would have been more than 300,000 patients in institutions at the time of the taking of the last census.

As an economic problem the cost of adequate provisions for the care of the insane exceeds any other single item of expense, except that expended for public education. The average cost of maintenance in institutions for the insane in the United States in 1910 was \$175 per patient, or a total for the year of \$32,804,450. As the cost of the Panama canal was \$312,361,840, and it required ten years for its completion, it is apparent that the annual cost of caring for the insane is greater than the annual cost of construction of that great work. In addition there

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should be added to this great amount the economic loss to the country through the withdrawal from productive labor of so many people in the prime of life. It has been stated by the United States Commissioner of Labor that the average value to the community of an adult between the ages of eighteen and forty-five is \$700 a year. Estimated upon this basis, the annual economic loss to the United States through the confinement of 187,454 people in institutions for the insane is more than \$130,000,000. If this is added to the cost of maintenance, the total is more than \$162,000,000—an amount equal to the entire value of the wheat, corn, tobacco, dairy products and beef products exported annually from the United States.

Such statistics, while they serve as a convenient means of comparison, cannot convey an adequate idea of the most serious results of mental diseases—the personal suffering and unhappiness, the social and family disaster, and the business troubles for which they are responsible.

The care of insane in different parts of the United States shows the widest variation; including prisons, almshouses, provision for custodial housing with all manner of restraint, so-called State Hospitals—which are not hospitals in fact, for there is no provision for clinical or laboratorial diagnosis and no treatment, but merely places for custodial care—a few state hospitals which are an approach to the term “hospital” and still fewer true psychopathic hospitals.

In most states, little or no scientific study of patients is done and consequently individual treatment is impossible. There are no standards in such states for proper case-records or opportunities for medical research and the medical spirit is, therefore, undeveloped. Medical staffs are usually too small; nursing services are generally crude; attendants are underpaid and insufficient in number; and facilities for the instruction of nurses and attendants often lacking. As a result mechanical restraint is far too common.

Under the present limitations—inadequacy of space, absence of laboratory, in-

sufficient medical aid, and small appropriation—the State Hospital of Colorado can subserve but little more than a custodial purpose.

It may be of interest and pertinent to the question of state responsibility and duty to refer to the conditions in the state of New York. The report of the State Hospital Commission of New York, which has just been published, conveys some idea of what that state is doing, and in spite of the great work, the institutions are overcrowded.

The thirteen civil hospitals are housing 35,462 patients, while the rated capacity is 28,977.

The appropriation passed by the last legislature amounted to \$1,713,920 for maintenance and initial grants for new buildings as well as for a new psychopathic hospital.

In addition to institutional cases, a total of 8,403 visits were paid to out-patient clinics—unquestionably the early advice, diagnosis and treatment obtained from specialists at these clinics prevent a considerable number of persons from developing serious or hopeless forms of mental disorders.

The per capita cost of maintenance in all hospitals for the past year was \$262.32 (the highest, Brooklyn, \$323.56, and the lowest, Middletown, \$243.90). By way of comparison, the cost in Colorado for the same period was \$.55 per day, or \$200.75 for the year. The State Hospital of Colorado in 1918 was caring for 1,752 patients; there was appropriated by the last legislature for maintenance, \$166,500.

In a previous address on the subject of state care of the insane, I referred to the greater provision made for the care of criminals, which was borne out by the appropriation of \$298,000 by the last legislature for the State Penitentiary which is providing for 558 inmates.

It would seem that what might be said of many places may be imputed to us—that in the care of the insane we have failed to keep pace with the great advances recently made in the care of other classes of sick.

It may be well to first consider the conditions under which the insane are attended when the first signs are manifested, the



common course of procedure, as well as the subsequent care, before discussing the provisions which members of a community should feel it a duty to supply, where a sickness or disease involves the mind and thus prevents the individual from either caring for himself or from having a voice in the selection of, or choosing the conditions which are necessary for his recovery or improvement.

The situation will be more readily appreciated if one selects an hypothetical case and at the same time avoids the extremes of social conditions, assuming one of average or moderate circumstances. Let us take a case with a more or less acute outburst of mental symptoms, which so rapidly reaches the point of uncontrollability as to render it impossible for the family or friends to cope with the requirements without assistance. Appeal is frequently made to the hospitals, where admission is promptly denied. Upon the recognition and advice that institutional care is demanded, the answer to the question, "What can we do?" is often beyond financial reach, revolting, or entirely wanting. If a private sanatorium be suggested with the necessary weekly expense of from \$35.00 upward, the impossibility of this being met by a family dependent upon salary is apparent. The only resort left is the commitment and confinement in the county hospital, as in this county, or in the jail or prison in many localities, until a commission in lunacy shall have ascertained the mental incompetency, when, after adjudication, the patient may be sent to the State Hospital. The legal requirements have been satisfied, the public protected, the family chagrined and grief-stricken, but what has been done to ameliorate the condition of the patient? Should the hallucinations or delusions have made him discomforting to those in charge (or other prisoners in the jail), he unwittingly courts abuse—straight-jackets, muffs, handcuffs, straps, and solitary confinement in unsanitary, vermin-ridden rooms, often without food or drink—until weakness and exhaustion removes the element of disturbance. And these are the conditions which greet the victim of mental

illness in the heart of the most prosperous land in the world, and whose people aspire to the greatest intellectual advancement of modern times.

I may be pardoned if I interpose a paragraph to convey to you the conditions at the county hospital of your capital city. About twenty years ago a building was constructed for the insane with which this county was burdened to the number of from 100 to 175 of adjudged cases, hence, state charges, owing to a difference in opinion as to the limitation of admissions to the State Hospital. The building was admirably arranged at the time and offered much promise until overcrowding, consequent restriction in attendants, lack of funds for treatment (and none for repairs or improvement) led to gradual defeat of its purpose. With the compelling of the State Hospital to admit the inmates here confined, the decline in the provisions and buildings became more rapid. The female ward was desired for housing the help, and the female insane patients were confined to one of the darkest inside rooms off one of the wards of the hospital which had been fitted with the necessary barred windows and a barred door. In further response to the call of economy, or pseudo-economy, the lower floor, or male insane ward, of the building was partitioned, and the male insane are at present confined to the west end, while the east end is now being utilized to confine the smallpox cases of the county.

Such are the quarters, without provision for treatment, with guards whose chief equipment is physical development replacing skilled and experienced attendants, which receive the recently afflicted mental unfortunates. The wonder would indeed be justified were patients to improve under such circumstances; and yet, these are the provisions for sick people—not felons—for insanity is a disease—not a crime. And this at a time when responsiveness to treatment, hygienic surroundings and kind attention might be most promising.

After adjudication, the more or less prompt consignment to the State Hospital is next in order. Arriving here our patient is met with overcrowded conditions and,

while sanitary, the institution affords no more than a custodial care. The inadequacy of medical assistants, absence of laboratory equipment, and provision for treatment in accordance with modern advancement in therapeutic methods entirely wanting, complete the picture or outline of the course of hopelessness which awaits those who lose the threads which control their mental competency and conduct, and which continues or endures until dissolution makes room for the next file of a continuous procession.

It is apparent that all attention and energy are required to fulfill at least three urgent demands:

1. Prevention of mental diseases;
2. Prompt care and treatment of incipient cases;
3. Improvement in the State Hospital to provide investigation for, and treatment of the more protracted conditions.

It is to the second, in the limited time at my disposal, that I wish especially to devote attention, and its development may be made to operate largely in the first, or in the matter of prevention.

A psychopathic hospital may be defined as one which is devoted to the care and treatment of incipient or acute, or recent mental disorders, and exists for the principal purpose of giving to these patients the best possible treatment as early as practicable, with a view of returning as many as possible of them to their families or friends without the otherwise unavoidable stigma of enforced residence in a state hospital for the insane.

Prompt observation and treatment of acute or incipient insane is the chief function of a psychopathic hospital, and constitute the reason for which an urgent appeal was made at the last session of the legislature. This was only successful in so far as the need was recognized through the passage of the bill providing for its establishment, but the sections having to do with the appropriation necessary to carry out the measure were eliminated. It should be located in Denver—as in the statute now approved—in order to be accessible to the center of population without delay. The character of the building and its surroundings

should be such as to suggest as little as possible an asylum for the insane, and it should be made as easy as possible for mentally disturbed persons to go there.

It should be, as is also provided, in close relation to the courts, and thereby serve as a place to which persons of doubtful mental condition might be sent for a period of intensive study, pending which a judicial decision could be postponed—in other words, it should serve as a clearing house for cases the disposition of which is open to question.

Admission should be made easy, in order to encourage as many as possible to enter voluntarily, but providing for both voluntary and legal commitments.

The building should be erected to provide a maximum exposure to sunshine, fresh air and ventilation. Recreation should be provided for and there should be a gymnasium with complete mechanical apparatus for physical development. There should be a complete hydrotherapeutic equipment or baths, and also provision for electrical treatment. In size it should accommodate between one hundred and fifty and two hundred patients, about equally providing for the two sexes.

There should be only single rooms and small wards to hold not over six or eight beds, and so arranged that the disturbing patients are removed as far as possible from those who are quiet.

The laboratory should be complete for modern methods of investigation, to facilitate diagnosis and further treatment, conducted and maintained on the highest possible plane to attain a maximum of results.

The statute provides for the close association of the hospital with the University of Colorado for economic reasons as well as for instruction purposes—economic because the detail work of the laboratory may be carried out by recent graduates or senior students of medicine under the supervision of the director or neuropathologist, thereby increasing the amount and scope of the work and furnishing invaluable training for the young physician, hence instructive.

Finally, it must be recognized that eventually a general hospital will be established as a part of the medical department of the



university and located in Denver instead of at Boulder as at present; and the supply of undergraduate nurses available will be at a minimum of expense to the state, while a maximum of valuable experience will accrue to the nurses.

The provisions of the act may be carried out with an appropriation of from \$200,000 to \$250,000, allowing from \$50,000 to \$75,000 for grounds.

As its value to the community becomes appreciated, as has been the case in those established elsewhere, it may be expanded to include an out-patient department to which persons afflicted with mental abnormalities who do not require institutional treatment may be referred and cared for, and still remain in their own community, and thus reach into the domain of prevention.

The results of early adequate treatment have been dealt with elsewhere and statistics are accessible from such institutions as Ann Arbor, Boston, the Phipps Institution at Baltimore, and others, which leave no doubt and place them well beyond the field of speculation, as a valuable acquisition from therapeutic, economic and humanitarian points of view.

Much might have been said regarding the necessity for improvement in the care provided for other conditions, such as the school for the training of mental defectives; the colony plan of caring for epileptics; the criminal insane and the juvenile delinquents; but the first and most important step in the establishment of state institutions should be taken in the direction of providing prompt, adequate, scientific, and humane treatment for acute, recoverable mental disorders. It is a duty which every individual in every community in this great state owes to his less fortunate brother—and such is the purpose of the psychopathic hospital recently legalized and which must be capitalized to be realized.

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**THE CHIROPRACTIC BILL WOULD OPEN A ROAD TO LICENSURE FOR MEMBERS OF THAT CRAFT WHO ARE AT PRESENT DISQUALIFIED BECAUSE OF THEIR IGNORANCE, ALSO ANY WHO MAY BE PRACTICING ILLEGALLY RIGHT NOW.**

## FREUD IN 1920.

### A Review of Freud's New Book, "A General Introduction to Psychoanalysis."

C. S. BLUEMEL, M.A., M.D., DENVER.

Freud's new book, "A General Introduction to Psychoanalysis," consists of twenty-eight lectures written for medical students.

Freud deals with his well-known theme, "that the psychic processes are in themselves unconscious, and that those which are conscious are merely isolated acts and parts of the total psychic life", and with the theme that sexual impulses "play an uncommonly large rôle in the causation of nervous and mental diseases", often through the repression of sexual wishes.

Freud begins his lectures rather simply with a discussion of "The Psychology of Errors", such as slips of the tongue, mis-reading and mis-writing words, etc. Thus a woman says in the course of conversation, "My husband asked the doctor to what diet he should keep, but the doctor said he didn't need any diet, he should eat and drink whatever *I* want". This error means that the woman is not going to be inconvenienced by her husband's dieting, and she will prepare the meals as she wants them herself.

A gentleman, in addressing a lady, says, "If you will allow me, madame, I should be very glad to *inscort* you". Freud explains that the word *inscort* is a combination of *escort* and *insult*, and the gentleman is really anxious to do both.

After citing several such examples, Freud continues, "Well, here we have solved the riddle of errors with relatively little trouble! They are not accidents, but valid psychic acts. They have their meaning; they arise through the collaboration—or better, the mutual interference—of two different intentions".

The fact that the person committing the error may vigorously deny the interfering intention only tends, from Freud's point of view, to confirm the existence of the hidden intention, for "he betrays a strong personal interest in having his slip mean nothing".

Some of Freud's explanations of individual errors seem logical enough when one considers the factor of apperception in the men-

tal processes, but other examples will certainly strike many of his readers as being fantastic.

It will be difficult for the critical reader to agree with Freud that every single mistake is probably meaningful, for there is too much evidence to the contrary. Freud's chapters on the Psychology of Errors furnish evidence to the contrary themselves. Thus there are printer's errors in these chapters in which **re-filed** has been converted by the typesetter into **re-filled**, and **perseverating** into **preservating**. In these cases it appears probable that through habit the printer has simply written the more familiar word. The critical reader knows that next January he will inadvertently write 1920 instead of 1921 on many occasions; and this error will mean nothing about an unfilled sexual wish.

After discussing errors, Freud proceeds to the subject of dreams, and maintains his familiar theme that "every time a dream is completely comprehensible to us, it proves to be an hallucinated wish-fulfillment". The dream is not usually comprehensible because the "manifest dream content" is different from the "latent dream content", or real meaning, which has to be explained by psychoanalysis. The analysis is necessary because the dream is distorted by the "dream-censor", which tries to keep the dream respectable by creating gaps, modifying or re-grouping the elements of the dream, or by compelling "allusions instead of direct truthfulness". In a manifest dream cited by Freud, the dreamer "pulls a certain woman of his acquaintance from behind a bed". The latent meaning is that the woman "has a pull" with him.

Dreams are further distorted by the fact that things in the latent dream are represented by symbols in the manifest dream. Thus a person may be represented in the dream by a house. In regard to different types of houses Freud says: "Those with entirely smooth walls are men; but those which are provided with projections and balconies to which one can hold on, are women".

"Parents appear in the dream as king and queen, or other persons highly respected. The dream in this instance is very pious. It

treats children, and brothers and sisters, less tenderly; they are symbolized as little animals or vermin. Birth is almost regularly represented by some reference to water; either one plunges into the water or climbs out of it, or rescues someone from the water, or is himself rescued from it, i. e. there is a mother-relation to the person. Death is replaced in the dream by taking a journey, riding in a train; being dead, by various darksome, timid suggestions; nakedness, by clothes and uniforms. You see here how the lines between symbolic and suggestive representation merge one into another".

"The dream has a number of representations for the male genital that may be called symbolic, and in which the similarity of the comparison is, for the most part, very enlightening. In the first place, the holy figure 3 is a symbolical substitute for the entire male genital. The more conspicuous and more interesting part of the genital to both sexes, the male organ, has symbolical substitute in objects of like form, those which are long and upright, such as sticks, umbrellas, poles, trees, etc."

"The extraordinary characteristic of the member of being able to raise itself against the force of gravity, one of the phenomena of erection, leads to symbolic representations by balloons, aeroplanes, and more recently, Zeppelins".

"The female genital is symbolically represented by all those objects which share its peculiarity of enclosing a space capable of being filled by something—viz., by pits, caves, and hollows, by pitchers and bottles, by boxes and trunks, jars, cases, pockets, etc. The ship, too, belongs in this category. Many symbols represent the womb of the mother rather than the female genital, as wardrobes, stoves, and primarily a room. The room-symbolism is related to the house-symbol, doors and entrances again become symbolic of the genital opening. But materials, too, are symbols of the woman—wood, paper, and objects that are made of these materials, such as tables and books. Of animals, at least the snail and mussel are unmistakably recognizable as symbols for the female; of parts of the body the mouth takes the place of the genital opening, while churches and chapels are structural symbolisms. As you



see, all of these symbols are not equally comprehensible”.

The following is one of the dreams cited by Freud and analyzed by him into its sexual symbols:

“Then someone broke into her house and she called in fright for a watchman. But the latter had gone companionably into a church together with two ‘beauties’. A number of steps led up to the church. Behind the church was a hill, and on its crest a thick forest. The watchman was fitted out with a helmet, gorget and a cloak. He had a full brown beard. The two were going along peacefully with the watchman, had sack-like aprons bound around their hips. There was a path from the church to the hill. This was overgrown on both sides with grass and underbrush that kept getting thicker and that became a regular forest on the crest of the hill.

“You will recognize the symbols without any difficulty. The male genital is represented by a trinity of persons, the female by a landscape with a chapel, hill and forest. Again you encounter steps as the symbol of the sexual act. That which is called a hill in the dream has the same name in anatomy, namely, *mons veneris*, the mount of Venus”.

Freud’s dream interpretations will not be convincing to all of his readers. For one thing, he introduces symbolism in his theory of dreams, but when practicing “analysis” he gives no rule for determining when a thing should be taken as a symbol and when it may honestly be itself. If the Zeppelin is a symbol for the penis, how may one dream about a Zeppelin that is legitimately a Zeppelin? “Death”, says Freud, “is replaced in the dream by taking a journey”. Yet he appears to forget this fact a little further on, and lets one of his patients dream of real travel. The dream is redeemed for psychoanalysis only by making the traveler’s two black trunks represent dark ladies.

Freud makes the matter of analysis even more difficult when he says, “It is always uncertain whether a specific dream element is to be taken in the positive or the negative sense, whether it is to be understood as itself or as its opposite”.

After discussing dreams, Freud proceeds to the subject of neuroses, and maintains

that “the neurotic symptoms have their meaning just like errors and the dream”.

He cites by way of example the compulsion neurosis of a nineteen-year-old girl who goes through a sleep ritual. “The large clock in her room is stopped, all other clocks are removed; not even the wrist watch on her night-table is suffered to remain. Flowerpots and vases are placed on her desk so that they cannot fall down in the night, and in breaking disturb her sleep. The most important observances concern the bed itself. The large pillow at the head of the bed may not touch the wooden back of the bed”.

This compulsion neurosis is easily explained by symbolism: The clocks, flowerpots, and vases are symbols of the female genitals. “The ticking of the clock may be compared to the throbbing of the clitoris during sexual excitement”. The pillow and the back of the bed represent the patient’s mother and father. Symbolically she keeps her parents apart, so that they shall not have another child, who would rival her for the parents’ affection. These thoughts, of course, exist in “the unconscious”, and the patient does not know she is thinking them until she is told.

The therapy of psychoanalysis, Freud explains, consists of transposing all pathogenic unconscious material into “the conscious”. “By projecting the unconscious into the conscious, we do away with suppressions, we remove conditions of symptom formation and transform a pathogenic into a normal conflict which can be decided in some way or other. This is the only psychic change we produce in our patients; its extent is the extent of our helpfulness”.

Freud’s “General Introduction to Psychoanalysis” differs little from his former writings, and contains practically nothing that is new in the Freudian phantasmology.

We note, however, that the “unconscious” is less active than it was in his “*Psychopathologie des Alltagslebens*”. In this former work the unconscious performed mental arithmetic, but in the present book its chief function is apparently to yearn.

Perhaps the most striking feature of this new book is Freud’s admission of the limitations of psychoanalysis. He frankly admits that psychoanalysis can reach only the

"transference neuroses", and that it is useless in the treatment of the true neuroses, which he enumerates as neurasthenia, anxiety neurosis, and hypochondria. He also admits that it is ineffectual in the treatment of paranoia, melancholia, and dementia precox, which "remain untouched on the whole, and proof against psychoanalytic therapy". Freud adds, "Here we are confronted with a fact that we do not understand, which bids us doubt if we have really understood all the conditions of success in other neuroses".

Just how one is to distinguish a curable "transference neurosis" from an incurable "anxiety neurosis" or an early psychosis, Freud does not explain; and inasmuch as the differential diagnosis is really little more than a matter of different spelling, it would appear that the only thing to do is to try psychoanalyzing the patient and see if it works.

It is notable that in his new book Freud is less dogmatic and militant than in his former writings, and he no longer accuses his opponents of having complexes that impair their intelligence, as he did a few years ago when delivering lectures at Clark University. In his new book he is more tolerant, and at times he is almost mellow.

But the outstanding feature of Freud's work is still his amazing credulity, and he writes as though appealing to the simple faith of a freshman class in a theological seminary rather than to the understanding of medical students. Freud dispenses with premises and proof, and takes his conclusions—much as an auctioneer might take his first bid—direct from the air. "The holy figure 3 is a symbolical substitute for the entire male genitalia". The why, or how, or whence does not matter, but merely the fact that it is. The flowerpot is a symbol of the female genitalia. How do we know? Might it not be the reverse, that the female genitalia symbolize the flowerpot? Or might it not be that the flowerpot is simply itself, and that Freud is not justified in annihilating all flowerpots by simple affirmation?

It is refreshing after reading Freud to turn to O. Henry. When his Pittsburg millionaire drinks champagne from a bottle, "That showed he used to be a glassblower before he made his money". This seems more

logical than the dictum concerning flowerpots; and even if it is a little illogical, we know that O. Henry is writing "sub-conscientiously".

## THE WORK OF THE COLORADO STATE BOARD OF HEALTH.\*

R. L. DRINKWATER, M.D., DENVER.

No doubt most of you are as unfamiliar with the workings of the Colorado State Board of Health as I was until a year ago when I received my appointment as a member of that board.

Many doctors look upon the State Board of Health as a place to file a few reports, which it is their duty to make, but your state health board should be your representative in court and an institution in which you would take great pride as a dispenser of public health.

Colorado, the leading western state in all enterprises, has the smallest appropriation per capita for its health board and is so limited that our present work is chiefly confined to the filing of birth and death certificates; and I might add that our entire office force is continually filing and is now working on 1918 births and deaths.

I wish to show you how limited we are in our work by the following experiences:

First. Realizing that the national forests throughout our state are being flooded with tourists—having had over one million visitors last year with the average stay of thirty-six hours within their borders—and thinking, undoubtedly, that there must be some pollution of our water supplies, I got in touch with the U. S. Forest Service and asked them if it would not be possible to have their forest rangers act as deputy sanitary officers, to serve without pay. They agreed and a contract was drawn subject to the approval of the attorney general. He disapproved of it, as it called upon the State Board of Health to pay the transportation of the offenders from the point of arrest to the county seat, he saying that we had no funds and could not legally incur such an expense.

\*Read at the annual meeting of the Colorado State Medical Society, September 7, 8, 9, 1920.



Hence, we lost sixty inspectors, as that was the number the Forest Service had picked out to do this work. I personally know of many instances of the pollution of your water supply and all of you know that this pollution will increase as the water sheds become more populated.

Second. A case of diphtheria was reported from a summer camp for indigent boys. We called up the county health officer and asked to have the case quarantined and the proper antitoxin given. The county refused to incur this expense, stating it was not their charge as these boys were not citizens of their community. No antitoxin was available and twenty-one cases of diphtheria developed out of this camp containing twenty-nine boys. If the state had funds, these boys would have received the necessary prophylactic antitoxin and care.

Third. The U. S. Public Health Service inaugurated a Keeping Fit campaign for boys on Sex Education, and asked us to assign one of our employes to carry on this work in our state. Having no available employe but feeling that this work was very important, Dr. Hickey, president of the board; and I interested private individuals in this work, raised the necessary funds, and the work is now being carried on. Undoubtedly, you will hear about it in your community. We were six months getting started, while in practically every other state the few thousand dollars were immediately taken from the State Board of Health fund.

The state of Pennsylvania spent over two million dollars last year in the fight against tuberculosis, maintaining three sanatoria and a preventorium for children with a tendency toward tuberculosis; while Colorado, the dumping ground of the whole United States for tuberculosis, did not spend one cent. People who are interested in the tuberculosis question in our state estimate the number of indigent tuberculars here between four and five thousand—those able to do a little work to help out their insufficient income being many times that number. This costs the state a great deal of money each year.

We have ample laws in the state for the

proper reporting of tuberculosis and had we the funds to establish a department, we could save the state considerable money. You do not want these people in your community and I know of several instances where the local people have bought tickets and shipped these people to the next town.

Our infant mortality for 1918 was 1,879, and for 1919 was 1,505.

Our death rate for children under five years of age is greater than that of the City of New York. Think of the City of New York with its poverty and poor housing conditions, having a lower death rate than glorious Colorado! They maintain baby health centers.

Statistics show that in states maintaining a department of public health nursing, the infant mortality rate is on the decrease; while in other states it is really on the increase. Think what a few public health nurses, properly trained, could do for the community toward saving the lives of the new-born, also in giving instructions to the many cases of tuberculosis which are in our state.

Now what Colorado needs is a Commissioner of Health, who is trained for the position and who is absolutely independent of politics. It should establish a Department of Tuberculosis which should be under the direction of one trained for that work. A Department of Sanitary Engineering should also be established, as we are frequently called upon to render assistance in this line of work. We need better laboratory facilities. There should be a laboratory in Pueblo and, possibly, one in Grand Junction so that doctors in any part of the state could get reports soon enough to be of benefit to them. We need a state sanatorium for our own tuberculars. We found out in the army draft that we had home-grown tuberculosis and it is our duty to take care of our own indigent tuberculars.

Now how are we to get this much needed help? There is only one way that I know of, i. e., by educating the legislators. If each and every one of you will appoint yourself a committee of one to educate your local representative to the state legislature,

we can accomplish this work. When you arrive home, find the man who will represent you, educate him to our needs; if necessary, shame him to our needs; and when the legislature meets next January we will have the proper health bills introduced and, undoubtedly, we will get this help.

I have prepared a chart which shows the appropriation for each state, and which shows us practically at the bottom of the list. You will note that in one column I show the date of organization because it has been argued that we are new and these things will come later; but every new State Board of Health has a larger appropriation than we have. I have also printed the number of health organizations coördinating with the boards of health. Some of these organizations spent more for public health in their state than the entire amount of our state appropriation.

A few figures for fear that some of you will overlook the chart: -

South Carolina, which many of us look upon as a state where educational facilities are poor and where they work the children in factories—if this be true, they certainly take care of their health because they spend over a quarter of a million dollars a year—spends more on child hygiene than we spend on our entire state board.

Alabama spends more on rural sanitation than we do on our entire state board.

New Mexico is at present advertising for a county health officer for each county in the state, at a salary of \$3,700 each.

Montana has its own State Board of Health building, costing \$50,000, and maintains its own laboratories, having spent \$153,000 last year or about twenty-four times as much per capita as we spend; yet we consider Montana "wild and woolly".

In conclusion I wish to read a letter from our governor:

"September 2, 1920.

"Dr. R. L. Drinkwater, Secretary State Board of Health, Capitol Building.

"Dear Doctor Drinkwater:

"My attention has been called to the disparity between appropriations made by Colorado and adjoining states for the care of tuberculars. While this state has, because of its climatic advantages, a larger number of sufferers from this disease than any of its neighbors, it appears that it has taken less precautions to protect itself against

the malady than any of them. I want the Board of Health to know that I am strongly favorable to larger appropriations for its use in fighting the White Plague.

"Yours truly,

"O. H. SHOUP,  
"Governor."

#### DISCUSSION.

**Philip Hillkowitz, Denver:** I have a confession to make. In the discussion of the previous paper I gave warning of some criticisms I had in store for the State Board of Health. When I saw on the program that the secretary of the State Board of Health had a paper, I thought I would now give vent to my pent up feelings regarding deficiencies of the board. I am free to admit that the essayist has entirely stolen my thunder. I really have not a word to say, because he has very manfully shown the shortcomings of the State Board of Health and one can only praise the work of the board under these adverse circumstances. It is really remarkable what the members of the board have achieved with the small appropriation at their command and the difficulties that they are working under. At the same time it is a good sign of prospective improvement that they themselves are alive to the meagerness of their past results.

The essayist has called attention to some remedies, and one of these is the question of politics, which enters into the State Board of Health in many cases. Particularly has this been flagrant in Colorado. We are working at the present time under a sort of a bipartisan system where the incoming governor selects so many democrats and so many republicans regardless of the fitness of the individuals and their knowledge of sanitation. In these days when it is very difficult to distinguish between democrats and republicans, from their political platform, you can very well understand that the task of the governor is extremely hard. We have not therefore always been very fortunate in the personnel. There are a few very good men who are on the State Board of Health who are devoted heart and soul to the betterment of the sanitation in our state. We are working also under the adverse circumstance that our state is still sparsely settled and the taxation per capita will be very high if we are to carry out a good health program. We have a great many streams at the present time which are polluted; we have a condition down in the southern mining camps which I understand, from some preliminary surveys that have been made, show an appalling condition, and which on account of certain circumstances the press would not be willing to give publicity to, especially in these days of propaganda and suppression of facts. The water supply in many of the towns is frequently not above reproach. This naturally brings up the question of typhoid. There is an epidemic or near epidemic of typhoid fever going on at present in the state. If there is anything for which we are criminally liable it is the existence of typhoid fever, especially in view of the lessons we have learned from the war. There is an increase of typhoid incidence in Denver this fall. So far as I know, no concerted steps have been taken to make a survey of the conditions as to the source of the contamination.

As regards the matter of tuberculosis, it is a very important question in this state, and I would like to ask the State Board of Health what can be done to co-ordinate the various agencies. This applies not only to tuberculosis, but other things. At the present we have a state board of health,



we have local boards of health, we have the Colorado Tuberculosis Society, the Denver Anti-Tuberculosis Society, we have the United States Army and Navy, the Public Health Service, the Vocational Training Board, War Risk Insurance, Red Cross, etc. There are public agencies, private agencies, government, municipal and state, and so far as I know there has been no attempt at coordination. There is a continual overlapping and great loss of efficiency, and in some cases there has been money wasted—probably unintentionally—where it might have been productive of good if devoted to the right cause at the right time. It would not be a bad plan to get all the agencies together. As regards the remedy for improved functioning of our State Board of Health, it all comes back to the question of money, and that depends upon the legislature. We have been wisely advised as a profession to prevail upon our legislature to help the board by an appropriation of funds. If there is any one body in the United States that is potentially powerful, it is the medical profession, but it never uses that power. It seems there is no body of men that could do more good with concerted action than the medical profession. We have our representatives all over the state in every town and hamlet, and I am sure that they can do much good if they use their united power for good so as to make our state as healthy as nature made it and as it is famed to be throughout the United States.

**Dr. Drinkwater (closing):** Dr. Hillkowitz made a good point about the cooperation or coordination of the other societies. How that is to be done, I don't know. It is true that we have some work on tuberculosis being done throughout the state by agencies who do not cooperate or coordinate. If we could get the money to establish a state department, undoubtedly it would bring together all these organizations that are fighting tuberculosis in our state. I don't want Dr. Vaughan or Dr. Rawlings to take some of our shortcomings home with them. This is a little paper for ourselves.

**Dr. Vaughan:** We all have them, Doctor.

**Dr. Drinkwater (continuing):** I don't wish to say this in any way to knock our glorious state. I want you all, if you do not have enough enthusiasm, to read that chart on the wall and see what some of the states are doing and see what we are doing, and I believe you will get back of me and push, and get something that we can be proud of, and I believe that one doctor in a local community can do more than twenty of the most able addresses ever given; your legislator has more confidence in what you say to him in your own home than in what all the orators in the world can say to him when he comes to Denver.

**THE PSYCHOPATHIC HOSPITAL BILL WILL WIN AT THE ELECTION IF IT IS PROPERLY EXPLAINED TO THE PEOPLE. IT RESTS WITH THE PHYSICIAN TO PROPERLY MAKE THAT EXPLANATION.**

**WOULD YOU RISK A CHIROPRACTOR'S OFFICIAL DIAGNOSIS OF DIPHTHERIA IN YOUR OWN FAMILY? DEFEAT THE INITIATED BILL WHICH WOULD GIVE HIM THAT RIGHT WITH FAMILIES WHO DO NOT KNOW WHAT YOU DO ABOUT DISEASE.**

**VOTE YES ON THE PSYCHOPATHIC HOSPITAL APPROPRIATION MEASURE.**

**VOTE FOR THE EDUCATIONAL AMENDMENT.**

## THE COLORADO STATE MEDICAL SOCIETY. (Incorporated November 1, 1888.)

The next meeting will be held in Pueblo.

### OFFICERS, 1920-1921.

President, F. R. Spencer, Boulder.  
President-elect, H. A. Smith, Delta.  
Vice Presidents—1st, W. V. Mullin, Colorado Springs; 2nd, F. W. E. Henkel, Silverton; 3rd, R. S. Johnston, La Junta; 4th, Carbon Gillaspie, Boulder.  
Secretary, F. B. Stephenson, Denver.  
Treasurer, W. A. Sedwick, Denver.  
Delegates to the American Medical Association: Senior, Gerald B. Webb, Colorado Springs.  
Alternate, H. G. Wetherill, Denver.  
Junior, J. N. Hall, Denver.  
Alternate, C. F. Hegner, Denver.

### Constituent Societies, Times of Meeting, Secretaries

**Boulder County**—First and third Thursday; secretary, Walter K. Reed, Boulder.

**Chaffee County**—Time of meeting (not reported); secretary, G. W. Larimer, Salida.

**Delta County**—Last Friday of each month; secretary, H. A. Smith, Delta.

**Denver County**—First and third Tuesday of each month; secretary, Minnie C. T. Love, Denver.

**El Paso County**—Second Wednesday of each month; secretary, C. E. Richmond, Colorado Springs.

**Fremont County**—Fourth Monday of January, March, May, July, September and November; secretary, Otis Orendorff, Cañon City.

**Garfield County**—Time of meeting (not reported); secretary, E. J. Horan.

**Huerfano County**—Time of meeting (not reported); secretary, Anbert Durnell.

**Kit Carson County**—Time of meeting (not reported); secretary, Wm. L. McBride.

**Lake County**—First and third Thursday of each month; secretary, E. B. Lynch, Leadville.

**Larimer County**—First Wednesday of each month; secretary, R. L. Gleason, Wellington.

**Las Animas County**—First Friday of each month; secretary, E. S. Adams, Trinidad.

**Mesa County**—Third Thursday of each month; secretary, A. G. Taylor, Grand Junction.

**Montrose County**—First Thursday of each month; secretary, D. C. Groves.

**Morgan County**—Time of meeting (not reported); secretary, E. R. Clark, Fort Morgan.

**Northeast Colorado**—Second Thursday in each month; secretary, J. H. Bush, Sterling.

**Northwestern Colorado**—Time of meeting (not reported); secretary, E. L. Morrow, Oak Creek.

**Otero County**—Second Tuesday of each month; secretary, G. E. Calonga, La Junta.

**Prowers County**—First Tuesday of each quarter; secretary, Milton Friend, Lamar.

**Pueblo County**—First and third Tuesday of each month; secretary, Philip Work.

**San Juan Medical**—Time of meeting (not reported); secretary, F. W. E. Henkel, Silverton.

**San Luis Valley**—Time of meeting (not reported); secretary, C. A. Davlin, Alamosa.

**Teller County**—(Not reported).

**Weld County**—First Monday of each month; secretary, W. F. Spaulding, Greeley.

# Minutes of the House of Delegates of the Fiftieth Annual Meeting of the Colorado State Medical Society

Held at Glenwood Springs, Sept. 7, 8, and 9, 1920

## First Meeting of the House of Delegates, Sept. 6, 1920

The House of Delegates met at the Colorado Hotel, Glenwood Springs, and was called to order at 8 p. m. by the President, Dr. F. H. McNaught.

The Secretary called the roll and the President announced a quorum present.

The minutes of the previous meeting were adopted as published in the November issue of Colorado Medicine, 1919.

The report of the Credentials Committee was then read by the Secretary and is as follows:

### REPORT OF COMMITTEE ON CREDENTIALS.

Your Committee on Credentials desires to submit the following table and report:

Society.	Members.	Delegates.
Boulder .....	40	2
Chaffee .....	8	1
Delta .....	18	1
Denver .....	414	17
El Paso .....	90	4
Fremont .....	19	1
Garfield .....	14	1
Huerfano .....	9	1
Lake .....	13	1
Larimer .....	29	2
Las Animas .....	32	2
Mesa .....	22	1
Montrose .....	11	1
Northeastern .....	24	1
Otero .....	22	1
Prowers .....	14	1
Pueblo .....	57	3
San Juan .....	16	1
San Luis Valley .....	27	2
Routt .....	12	1
Weld .....	32	2
Kit Carson .....	11	1
	934	48

No delegates have been certified to the Secretary for Teller or San Luis Valley Societies.

Kit Carson County Medical Society has made application for a charter with a paid-up membership of eleven. We recommend that its delegate be seated with this report.

CRUM EPLER,  
Secretary.

Dr. Morrow made some remarks with reference to the change of name of the Routt County Medical Society to the Northwestern Colorado Medical Society.

The matter was discussed by Dr. Epler, who stated that in the Secretary's report it was noted that Routt County desired to have the name changed, as suggested by Dr. Morrow, and that San Juan County desired to be known as the San Juan Medical Society.

On motion made and seconded, the report of the committee was adopted as read.

The President then announced the following reference committees:

Reference Committee on Reports of Officers—W. T. H. Baker, Chairman; S. B. Childs, F. T. Stevens.

Reference Committee on Reports of Committees—C. F. Hegner, Chairman; R. G. Smith, R. E. Holmes.

Reference Committee on Miscellaneous Business—H. S. Henderson, Chairman; C. N. Meader, W. V. Mullin.

Committee on Appropriations—H. A. Smith, Chairman; G. P. Lingenfelter, C. W. Thompson.

Under the order of business, Reports of Officers, the President announced that he had no report to present.

The Secretary, Dr. Epler, presented his report, which, on motion, seconded and carried, was referred to the Reference Committee on Reports of Officers. The report is as follows:

### REPORT OF THE SECRETARY.

1. Your Secretary, in his sixth annual report, desires to express his appreciation to the various officers of the society, the officer of the constituent societies and the membership in general, for their kind, courteous and hearty cooperation during his tenure of office. It is hoped that his successor will share a like confidence and generous support throughout his official career.

2. It is pleasing to note that the profession is becoming more generally affiliated with the state society than ever before in all its forty-nine years. The present membership is 942. To your Secretary this gradual growth, though slow, is indicative of the appreciation of the value of an organized profession.

3. During the past year the Society ventured to place before the profession a course in **Medical Extension work**. This was undertaken in the form of the lecture plan. It was instituted somewhat as a feeler, first to see how it would be received, and secondly to see what could be done to advantage, and for that reason all of the localities requesting the course were not served. It covered ten localities, which made it available for about seventy-five percent of the profession in the state adjacent to ten county societies. From the reports received by the Secretary, who was the executive officer, of the plan, the scheme was very well received outside of the larger places; such places as Pueblo, Colorado Springs and Denver were not well attended by the membership of their local societies, in fact the Medical Society of the City and County of Denver deemed it not advisable to continue the course after the first meeting, and requested permission to discontinue it. This request was granted, and no further meetings were held in that city. The impression which your Secretary gathered from reports received is that the work should be continued for the benefit of those who desire it, but under some modified plan.

4. One county society was dropped for non-



payment of dues during the year. That society was Morgan County.

One new society was organized and comes before you asking for a charter with eleven (11) fully paid up members. This society is Kit Carson.

It is believed that mention here should be made of two societies that have had their difficulties, still, each of which is gaining in membership; one is San Juan, which through the untiring efforts of Dr. Henkel has added several new members to the organization from adjoining unorganized counties under the name of San Juan Medical Society; the other is Routt County Society, which has done likewise through the leadership of Dr. Morrow, and desires the new name of Northwestern Colorado Medical Society.

5. The following is the Secretary's report in so far as the members and collection of dues are concerned, for the past year:

#### Reinstated since last annual session.

Members	Dues Collected	
Denver .....	15	\$ 45.00
El Paso .....	3	9.00
Lake .....	1	3.00
Larimer .....	1	3.00
Las Animas .....	1	3.00
Morgan .....	5	15.00
Otero .....	1	3.00
	<u>27</u>	<u>\$ 81.00</u>

#### Those paid for the year of 1920.

Members	Dues Collected	
Boulder .....	38	\$ 114.00
Chaffee .....	8	24.00
Delta .....	18	54.00
Denver .....	396	1,188.00
El Paso .....	87	261.00
Fremont .....	19	57.00
Garfield .....	14	42.00
Huerfano .....	9	27.00
Kit Carson .....	11	33.00
Lake .....	12	36.00
Larimer .....	28	84.00
Las Animas .....	28	84.00
Mesa .....	22	66.00
Montrose .....	11	33.00
Northeastern Colo.	24	72.00
Otero .....	21	63.00
Prowers .....	14	42.00
Pueblo .....	55	165.00
San Juan .....	16	48.00
San Luis Valley..	27	81.00
Northw'st'rn Colo.	12	36.00
Teller .....	7	21.00
Weld .....	32	96.00
Unattached .....	2	6.00
	<u>911</u>	<u>\$2,733.00</u>

#### Recapitulation.

Reinstated .....	27	81.00
Paid for 1920 ....	911	2,733.00
Military Exempt. .	4	00.00
	<u>942</u>	<u>\$2,814.00</u>

CRUM EPLER,  
Secretary.

The Treasurer, Dr. W. A. Sedwick, presented his report, which was referred to the Reference Committee on Reports of Officers. Dr. Sedwick stated that he desired to extend his thanks and appreciation to Dr. W. H. Crisp, who had acted for about two years as treasurer, for the able and efficient manner in which he handled this matter. The report is as follows:

#### REPORT OF THE TREASURER.

From October 10, 1919, to September 4, 1920.

#### RECEIPTS.

Balance on hand October 10, 1919:	
Cash in bank .....	\$2,666.77
Liberty Bond (face value)	1,000.00
From Secretary, dues .....	2,814.00
From Editor, Colorado Medicine:	
Gross Advertising	
Receipts .....	\$1,556.72
Individual subscriptions and single copy sales .....	37.30
	<u>1,594.02</u>
Interest on savings account ..	77.51
Interest on liberty bond ..	21.25

Total of balance on hand, bonds and receipts **\$8,173.55**

#### DISBURSEMENTS.

##### Journal Maintenance.

Western Newspaper Union ..	\$2,595.74
Western Press Clipping Co..	27.00
Carson Harper Company, stamped envelopes, and advertising contract blanks...	25.25
F. B. Stephenson, editor's salary, advertising commissions, hand delivery, incidentals and postage .....	671.95
Mrs. C. B. Haines, salary editor's stenographer.....	110.00
Postmaster, annual deposit ..	25.00
	<u>\$3,454.94</u>

##### Secretary's Office.

Secretary's clerk salary .....	\$ 110.00
Secretary's salary .....	150.00
Carpenter, extra clerk salary.	50.00
	<u>\$ 310.00</u>

##### Library.

Books C. R. Troth .....	\$ 137.49
D. Appleton and Co..	6.00
A. G. Drury .....	5.00
Medical Society City and County of Denver	5.00
	<u>\$ 153.49</u>

##### Medical Extension.

Mountain States Telephone Company .....	\$ 12.25
Postgraduate programs .....	3.41
Return Postals .....	28.50
	<u>\$ 44.16</u>

##### Incidentals.

Western Newspaper Union, programs for meeting of 1919, etc. ....	\$ 79.32
O'Brien Printing Company ..	46.50
Riverside Printing Company, membership certificates ...	16.85
Miles and Garver, Badges ..	11.75
	<u>\$ 154.42</u>

##### Committee on Public Policy and Legislation.

Fifteen hundred petitions, envelopes, etc .....	\$ 154.87
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**Carpenter and Peters.**

Reporting annual meeting ...\$ 193.25

<b>Total Disbursements</b> .....	<b>\$4,465.13</b>
<b>Balance on hand to date of report</b>	
Cash in bank .....	\$2,708.42
Liberty bond .....	1,000.00
	<hr/>
	<b>3,708.42</b>
	<hr/>
	<b>\$8,173.55</b>

There being no member present to report for the delegates to the American Medical Association, this order of business was passed.

A verbal report of the Committee on Scientific Work, was presented by Dr. A. J. Markley, who suggested that the House of Delegates in some way modify the by-laws with reference to the formation of the program for the annual convention, and make it easier for the program committee to appeal to members throughout the state to submit papers and to give them a longer time in order to submit papers, allowing them to send in their names and their titles as late as two weeks before the date of the annual meeting. This subject was discussed by Drs. Spencer, Freeman and Epler, and upon motion made, seconded and carried, the report was referred to the Committee on Reports of Committees.

The chairman of the Committee on Public Policy not being present, the report of this committee was passed until the session of September 7.

Dr. L. B. Lockard then presented the report of the Committee on Publication, and the same was referred to the Committee on Reports of Committees. The report is as follows:

**REPORT OF THE PUBLICATION COMMITTEE.**

Since the meeting of the Society in 1919, eleven numbers of our official journal have been issued. These comprise 192 pages of advertising and 300 pages of reading matter. The reading matter consists of 29 state papers, 12 other original articles, editorials, news notes, list of members, proceedings of the House of Delegates and the County Medical Societies' reports. Thirty-eight books were reviewed, of which 26 were deposited with the Library of the State Society.

The gross expenditure was \$3,454.94, apportioned as follows:

Editor's salary .....	\$ 275.00
Commissions on advertising .....	357.07
Editor's assistant .....	110.00
Printing the Journal .....	2,609.79
Postage, Stationery .....	103.08

Total expenditures .....\$3,454.94

The gross receipts from advertising, occasional subscriptions and sales of individual copies were \$1,594.02. Appropriation of \$2.00 per capita of membership \$1,850.00. Total \$3,444.02. Deficit \$10.92.

The Society was advised at the last meeting of a proposed increase in the printing rates. This increase became effective at once and the result is that a forty page journal now averages \$240.55, whereas in 1919, a forty page journal cost \$172.46, and in 1918, 158.12. In other words the journal cost \$4.32 a page in the first part of 1919, as against \$6.00 per page in 1920. This increase in cost has been partly overcome by increased advertising, the total receipts in 1918 being \$116.32 per issue; in 1919, \$128.81 per issue; and in 1920, \$144.91 per issue; however, the journal has been increased in size so that the expense is again somewhat raised on that account. Our advertising rates have been raised considerably but the raise could not be taken advantage of on many of these

accounts because of contracts, many of which it was thought best to renew on the old rates until January 1921, when the new rate card will be generally effective. Next year's advertising receipts should be considerably increased over this year.

We desire to express our thanks to the editor, Dr. Frank B. Stephenson, for his very efficient and conscientious management of the Journal.

L. B. LOCKARD, Chairman.

The Chairman of the Auditing Committee not being present, this report was passed.

The report of the Committee on Medical Education was presented by Dr. C. N. Meader, and on motion the same was referred to the Committee on Reports of Committees. The report is as follows:

**REPORT OF COMMITTEE ON MEDICAL EDUCATION.**

With the resumption of the normal activities of medical schools and the return of members of the medical reserve corps to teaching, following the ending of the war, a new stimulus was applied to medical education. Our war experiences not only emphasized the important position which the physician occupies in modern life but showed quite as clearly the defects in undergraduate teaching in even our strongest schools and the serious deficiency in facilities for postgraduate medical instruction in this country.

The influence of these lessons has shown itself in part in increased activity devoted to raising funds to meet rising costs and provide further expansion, in part in efforts to improve teaching technique and secure better correlation and content in courses already given, and in part in a determined effort for the improvement and extension of postgraduate instruction. The transfer by Mr. Rockefeller of \$20,000,000 to the General Education Board for expenditure on medical schools is perhaps the most spectacular and certainly the largest contribution to financial relief. Highly ambitious programs for undergraduate teaching, in part dependent on this help, in part independent, are in progress in many schools, which, if even partly realized, will do much to strengthen medical education. The movement toward better teaching is illustrated by the excellent symposium on instruction in the medical sciences at the last meeting of the Association of American Medical Colleges and by the similar one on clinical instruction planned for the next meeting. The required fifth or interne year has secured increased recognition and adoption during the past year. The beginning of general recognition of the need for increased and better arranged facilities for postgraduate study in this country is suggested by the inclusion in the current Educational Number of the Journal of the American Medical Association for the first time of a compilation of such facilities. According to this report there are eight schools now offering courses leading to a degree in Public Health and eighteen graduate medical schools, of which only six are established in connection with strong university departments of medicine. The need for sound development in this field of medical education is manifest.

Statistically, there has been a slight increase in the total number of medical students enrolled, with an increase in women students of about 16 per cent; an increase of about 10 per cent in the total number of graduates, and a slight increase in the percentage graduating from Class A schools, with no change in the total number of schools.

In Colorado, the most important development has been a careful survey and analysis of the needs and possibilities of the School of Medicine, leading to the formulation of a definite program



by the President and Board of Regents of the University. No concrete results are available for report at this time but the study has done much to crystallize sentiment behind a program which, if it can be carried out, should strengthen medical education in Colorado in a most satisfying manner.

HUBERT WORK,  
CHAS. N. MEADER.

Dr. W. W. Crook then made a verbal report of the work of the Committee on Arrangements, and on motion, seconded and carried, the report was accepted and Dr. Crook accorded a vote of thanks.

Dr. O. M. Shere, Chairman of the Committee on Workmen's Compensation Act, not being present, this report was passed.

The report of the Committee on Co-operation with the State Pharmaceutical Association was passed.

The report of the Committee on Medical Literature was also passed.

Secretary Epler then suggested the advisability of appointing a committee, or the Chairman of the Committee on Arrangements, to meet physicians from out of town and to escort them to the place of meeting. This matter was referred to Dr. Crook, Chairman of the Committee on Arrangements.

The President then called for nominations for the **Nominating Committee**, and the following were nominated: T. E. Carmody, Denver; F. T. Stevens, Colorado Springs; W. W. Crook, Glenwood Springs; W. T. H. Baker, Pueblo; Clay Giffin, Boulder.

On motion, duly seconded, the nominations were closed and the Secretary instructed to cast the ballot. The ballot being cast, the President announced the nominees elected.

The matter of the proposed amendment to the constitution offered by Dr. Black at the last meeting, was, upon motion, duly seconded and carried, referred to the Committee on Miscellaneous Business.

On motion of Dr. Jackson, duly seconded and carried, the items of the change of names of the San Juan County Medical Society and the Routt County Medical Society were referred to the Committee on Reports of Officers with the request that they report at the session of Sept. 7.

On motion, seconded and carried, the House of Delegates adjourned until 9 a. m., September 7, 1920.

## Second Meeting of the House of Delegates, Sept. 7, 1920

The House of Delegates met at 9 o'clock a. m., pursuant to adjournment, and was called to order by the President.

The Secretary called the roll and the President announced a quorum present.

The minutes of the previous meeting were read and approved.

Dr. Epler moved that in the event of the absence of any committeeman, the report of such committeeman be passed until the next meeting of the House of Delegates without further question. The motion being duly seconded and put to a vote, was carried.

The following reports of committees were passed:

Report of the Committee on Public Policy and Legislation.

Report of the Auditing Committee.

Report of the Committee on Cooperation with the State Pharmaceutical Association.

Report of the Committee on Medical Literature.

As a special order of business, Dr. Baker, Chairman of the Committee on Reports of Officers, pre-

sented his report, and on motion of Dr. Black, duly seconded and carried, the report was placed on file; it is as follows:

### REPORT OF THE COMMITTEE ON REPORTS OF OFFICERS.

1. Your Committee on Reports of Officers wish first to express the thanks of the State Society to the retiring Secretary and Treasurer for the work they have done during the past year.

2. We recommend that the present committee in charge of the Medical Extension Work be thanked for the work they performed in the past year in initiating the lecture course, and that the feasibility of continuing said work be left to the present committee to do as they deem best.

3. We recommend that a charter be granted to the Kit Carson Society.

4. We recommend that the name of the San Juan County Medical Society be changed to the San Juan Medical Society and that of the Routt County Medical Society be changed to the Northwestern Colorado Medical Society.

5. We find that the Secretary has received dues from 938 members for the year 1920, amounting to \$2,814, and the report of the Treasurer shows that \$2,814 was received by him, both accounts being found correct.

W. T. H. BAKER,  
F. T. STEVENS.

Dr. Meader presented a verbal report of the **Committee on Miscellaneous Business**, outlining the views of the various members of the Committee with reference to eligibility of members for office, but making no definite recommendation.

The subject was discussed by Dr. Black, who suggested the following amendment: "Any man elected to an official position in the Society, who is already a member of the House of Delegates, automatically loses his seat in that body."

On motion of Dr. Jackson, seconded by Dr. Moleen, it was suggested that the matter be referred back to the Committee on Miscellaneous Business, with instructions to report the amendment in definite shape for action by the House.

The subject was then discussed by Drs. Wetherill, Jackson, Baker, Moleen and Epler.

A rising vote being called for, the motion was put with the following result: 19 votes in the affirmative; none voting in the negative.

The motion was thereupon declared carried.

Dr. Epler moved that when this meeting adjourn, it adjourn to meet immediately following the scientific meeting.

The motion was duly seconded and on being put to a vote, was carried.

## Adjourned Session, Second Meeting of the House of Delegates

The meeting was called to order at 11:30 o'clock a. m.

Dr. Meader then presented the report of the Committee on Miscellaneous Business, and on motion of Dr. Black, seconded by Dr. H. A. Smith, the report of the Committee was adopted, as follows:

### REPORT OF COMMITTEE ON MISCELLANEOUS BUSINESS.

#### Amendment to Constitution.

1. Your Committee recommends that Article VIII, Sec. 3 of the Constitution be amended to read as follows:

"The officers shall be elected on the morning of the last day of each annual session. In case of the election of any member of the House of Delegates to one of the offices mentioned in Article VIII, Sec. 1, his seat in the House of Delegates



shall be automatically vacated. No delegate to the American Medical Association may be elected to any other office during the term for which he was elected. No person shall be elected to any office who was not in attendance at one of the two annual sessions next preceding his election."

2. The Committee having received an appended resolution introduced by Dr. Epler desires to recommend as follows:

That the present Committee on Workmen's Compensation Act be abolished and that in its stead there be created a standing Committee on Social Medicine, to which this and similar matters be referred. The Committee approves the purpose of the resolution presented.

W. V. MULLIN, Chairman.  
CHAS. N. MEADER.

Dr. Meader then presented the following resolution and resolution of the Committee: "In that there is a growing force in some localities in favor of having all persons treated under some health insurance plan, and fully appreciative of the dilemma the profession has permitted to be thrust upon itself in the already operating Employes' Compensation, therefore be it **RESOLVED** that the Colorado State Medical Society appoint a good, strong active committee to investigate the workings of such proposed health plans, and that the committee be instructed and empowered to use such legitimate means to the end that the welfare of the profession be safeguarded.

#### **New Standing Committee (Social Medicine).**

"The Committee having received the appended resolution introduced by Dr. Epler, desires to recommend as follows: That the present committee on Workmen's Compensation Act be abolished and that in its stead there be created a standing Committee on Social Medicine to which this and similar matters be referred. The Committee approves the purpose of the resolution presented."

This subject was discussed by Drs. Black, Shere, Meader and Jackson.

Dr. Black then moved that the recommendations as embodied in the recommendation of the Committee be adopted. The motion being duly seconded and put to a vote was carried.

#### **State Compensation for Loss of Vision.**

Dr. H. A. Smith then made the following statement:

"The State Compensation Board has made a rule that 20-200 equals industrial loss of vision, or one hundred percent.

"Technically this is not one hundred percent loss of vision, but industrially it is ruled by the Compensation Board to be so. To construct a simple table for determining the loss of vision for the Industrial Commission, it is only necessary to subtract one-half of one percent for each foot. Example: 20-100 would equal fifty percent loss of vision.

"Members of the Compensation Board have considered this matter with me and they have asked that the State Medical Society endorse it, and they would have a ruling making it effective for the state."

Dr. Black moved that the House of Delegates recommend that it be the recommendation of the State Medical Society that the State Compensation Board adopt as their schedule for loss of vision the system of percentage proposed.

The motion being duly seconded and put to a vote was carried.

On motion, seconded and carried, the meeting adjourned.

## **Third Meeting of the House of Delegates, Sept. 8, 1920**

The House of Delegates met at 8 o'clock a. m., pursuant to the adjournment, and was called to order by the President.

The Secretary called the roll and the President announced a quorum present.

The minutes of the previous meeting were read and approved.

The President then appointed the following committee:

#### **Committee on Social Medicine:**

Crum Epler, Chairman.

O. M. Shere

Minnie C. T. Love

D. A. Strickler.

Dr. Strickler then read the report of the Committee on Public Policy, as follows:

### **REPORT OF COMMITTEE ON PUBLIC POLICY AND LEGISLATION.**

Your Committee on Public Policy and Legislation beg leave to report:

#### **First. The Psychopathic Hospital:**

Pursuant to the action of the House of Delegates your Committee undertook through Judge Ira C. Rothgerber and Mr. Chas. H. Haines the drafting of a bill to finance the Psychopathic Hospital statute enacted by the Legislature at its last session.

To initiate this measure it was necessary to secure some nineteen thousand signatures to the petition in order that it be placed on the election ballot at the coming election. To accomplish this each member of the Society was sent a petition and by this means we are happy to announce that the required number of signatures was secured and the bill will be number 6 on the ballot.

Aside from the great importance of the measure itself the success of this campaign is a noteworthy indication of what may be accomplished by the organized profession through united effort. It is perhaps the first instance of an initiated measure conducted without the aid of paid solicitation.

The committee desires to acknowledge with appreciation the assistance and cooperation of the Society thus far and to impress you with the urgent necessity of continued cooperation in the education of the voters if we are to succeed in having the measure passed by popular vote.

Few who know the purposes of the measure and the needs met by it will oppose it but the average individual who is not so informed will vote against it on the general ground that it increases taxation.

We recommend that the Colorado State Medical Society place itself on record as favoring the amendment to the constitution and exert its influence in the interests of the measure. We therefore recommend a definitely organized effort in the Society to present the measure favorably to the voters in all parts of the state.

**Second. The Educational Amendment,** an initiated amendment to Sec. II, Article X of the Constitution affording authority to the legislature to increase the mill-tax available for the support of the state educational institutions:

There never has been a time when the need of the state and nation for extensive and sound educational facilities was greater than it is today. It is most important that present facilities be conserved and added to, rather than curtailed, to the end that pressing problems in all constructive fields be better met, and the menace of ill-advised radicalism be minimized, especially since the high cost of all educational effort has created a situation in which, unless speedy relief be afford-



ed, higher education in the state must be seriously curtailed.

Third. In re an initiated **Chiropractic Bill** creating a Board of Chiropractic Examiners:

We are unable to present the provisions of this bill, as we have been unable to obtain a copy of it, nor have we been able to learn from any source what its provisions are. In a general way we are informed that it creates a separate board of examiners to license chiropractors, and provides for broader privileges than are now accorded them. The principle of duplication of boards of licensure to practice the healing art has never obtained in Colorado and we believe the same cannot be obtained through the legislature. Whether this measure shall succeed through popular vote or not depends upon the activity of the profession in opposition.

Since all of the above are initiated measures they will be voted upon by the people and as such require that any effective effort must be exerted before the election.

Fourth. In the matter of **Annual Registration of Physicians:**

This subject, with reasons for the same, was presented to the Society a year ago, at which time it was voted to refer the matter to the Committee on Public Policy and Legislation with power to act, as it is a matter for legislative consideration, and as there has been no session of the legislature since then we now report progress with the recommendation that the subject be continued with the Committee as of last year.

We recommend that the organization that may be created by this body use its influence in opposition to the measure on the basis that the only excuse for any board of licensure must be in the interest of the public health and the duplication of boards weakens its purpose.

Fifth. **A Bill to Protect Educational Degrees**, to the end that no institution incorporated under the state laws may be permitted to grant degrees without proper supervision of its equipment and qualifications to impart a reasonable amount of knowledge to justify the same. We recommend the indorsement of this Society of such measure to be presented to the next legislature.

DAVID A. STRICKLER, Chairman.

T. E. CARMODY.

Pursuant to a motion by Dr. Jackson, duly seconded and carried, the report was referred to the Reference Committee on Reports of Committees.

Dr. Epler thereupon presented the report of the Librarian, which was then read as follows:

#### REPORT OF LIBRARIAN.

**Books received through Colorado Medicine, Oct. 1, 1919—Sept. 1, 1920.**

DaCosta—Modern Surgery.  
Hirst—Manual of Obstetrics.  
McFarland—Pathogenic Bacteria and Protozoa.  
Robinson—Don Quixote of Psychiatry.  
Church, etc.—Nervous Diseases.  
Griffith—Diseases of Infants and Children. 2 vols.  
DaCosta—Physical Diagnosis.  
Albee—Reconstruction and Bone Surgery.  
Davis—Obstetrics. (Manual.)  
Vecki—Sexual Impotence.  
Crile—Surgical Shock.  
Norris—Diseases of the Chest.  
A. M. A.—Council on Pharmacy and Chemistry. Reports.  
Cooke—Nurse's Handbook of Obstetrics.  
Hare—Diagnosis of Disease.  
Thatcher—Flint's Physical Diagnosis.  
Hirsch—Roentgenological Technique.  
Morelli—Wounds of the Lungs and Pleura.

Freud—Introduction to Psychoanalysis.

Buck—Dawn of Modern Medicine.

Sharpe—Brain Injuries.

Einhorn—Duodenal Tube.

Morse—Diseases of Children.

Rivas—Human Parasitology.

Paton—Education in War and Peace.

**Books purchased by the Colorado State Medical Society, Oct. 1, 1919—Sept. 1, 1920.**

Footo—Minor Surgery .....	\$ 6.00
Davis—Plastic Surgery .....	9.00
Pottenger—Visceral Disease .....	4.05
Levinson—Cerebro-Spinal Fluid .....	2.70
DaCosta—Modern Surgery .....	7.20
Heinemann—Milk .....	5.40
Griffith—Pediatrics. 2 vols. ....	14.40
Flagg—Anesthesia .....	4.05
Mock—Industrial Medicine .....	9.00
Warfield—Arterio-sclerosis .....	3.60
Bassler—Diseases of the Stomach.....	6.30
Dakin, etc.—Handbook on Antiseptics...	1.13
Sequeira—Diseases of the Skin.....	12.60
Besredka—Anaphylaxis and Anti-anaphylaxis .....	2.03
Stewart—Physical Reconstruction and Orthopedics .....	3.38
Webster—Diagnostic Methods .....	5.40
Ochsner—Surgical Diagnosis and Treatment .....	9.00
Graves—Gynecology .....	7.65
Kincheloe—X-Ray Operation .....	5.00
Beck—Plastic Surgery .....	6.30
Burton-Opitz—Physiology .....	6.75
Bram—Exophthalmic Goitre .....	4.95
Hutchinson—Facial Neuralgia .....	3.60
Dennett—Infant Feeding .....	4.50
Additional charges on Osler Anniversary Volume .....	5.00

\$148.99

Volumes in Library Oct. 1, 1919 .....1,020

Volumes in Library Sept. 1, 1920 .....1,073

Added during the year ..... 53

Purchased .....27

Colorado Medicine .....26

Appropriation .....\$150.00

Expenditures ..... 148.99

Balance .....\$ 1.01

At the conclusion of the report, upon motion, duly seconded and carried, the same was adopted as read and ordered incorporated as a part of the record of these proceedings.

Dr. Morrow then made a few remarks with reference to the so-called "Tunnel" Bills, and moved that the House of Delegates endorse the same. The motion being duly seconded and put to a vote, was carried.

Dr. Carmody, on behalf of the Nominating Committee, asked for an extension of time in which to report, and on motion of Dr. Epler this Committee was granted further time.

Dr. Epler then moved that when this meeting adjourns, it adjourn to meet immediately following the scientific meeting, and that the report of the Nominating Committee be then made a special order of business.

The motion was duly seconded, put to a vote and carried.

The meeting thereupon adjourned.

#### Adjourned Session, Third Meeting of the House of Delegates

The meeting was called to order at 5:15 p. m.

Dr. Carmody then presented the report of the Nominating Committee, and on motion, duly sec-



onded and carried, the same was received and laid on the table.

The report is as follows:

#### Nominations.

President—H. A. Smith, Delta.

Vice President—

1st, W. V. Mullin, Colorado Springs.

2nd, F. W. E. Henkel, Silverton.

3rd, R. S. Johnston, La Junta.

4th, Carbon Gillaspie, Boulder.

Secretary—F. B. Stephenson, Denver.

Treasurer—W. A. Sedwick, Denver.

Publication Committee—Philip Hillkowitz.

Delegate—J. N. Hall, Denver.

Alternate Delegate—C. F. Hegner, Denver.

Meeting place—Pueblo.

T. E. CARMODY, Chairman.

Dr. Smith of Delta, read the report of the Appropriation Committee, which was as follows:

#### REPORT OF APPROPRIATION COMMITTEE.

Colorado Medicine, \$2.00 per capita of membership.

Editor's Salary .....	\$300.00
Incidentals and Printing .....	200.00
Programs and Postage .....	90.00
Public Policy .....	150.00
Editor's Clerk .....	120.00
State Library .....	150.00
Stenographer Annual Meeting .....	250.00
Secretary's Salary .....	200.00
Secretary's Clerk .....	120.00

H. A. SMITH, Chairman.

Upon motion, duly seconded and carried, the report was adopted.

On motion of Dr. Epler, seconded and carried, the Secretary was instructed to draw a voucher for the expense account of the three invited guests during their stay in Glenwood Springs.

The report of the Reference Committee on Reports of Committees was then presented by Dr. Hegner, as follows:

#### REPORT OF REFERENCE COMMITTEE ON REPORTS OF COMMITTEES.

**Medical Education** by Dr. C. N. Meader: reviewed and move that same be accepted.

**Educational Amendment:** The need of larger appropriations for Colorado's Institutions of Learning should be strongly emphasized. Your Reviewing Committee suggest that this matter be brought to the attention of the members of the Society with a view of stimulating an active interest favorable to legislation which will give adequate appropriation for educational purposes.

**Public Policy and Legislation:** Your committee desires to express its approval of the recommendations, severally and in toto and to recommend that the members of the Society be urged to lend their influence with the voters, to the ends outlined by the Committee.

**Scientific Program** by Dr. A. J. Markley. reviewed, and move that same be accepted.

The difficulties of program committees, always great, were not wanting in the work of this Committee.

In order to abrogate these difficulties and to make it easier for members of this Society to secure a place on the program, and to obtain a more widespread representation, your reviewing Committee suggest that the Program Committee start a vigorous campaign much earlier in the year with a view of securing more liberal distribution of members' presenting papers; and a modification directed to relaxing the stringent requirements of the by-laws governing the action of the Program Committee.

**Publication Committee's Report** reviewed, and move that it be accepted.

Reviewing Committee feel that the Publication Committee has done splendidly and is to be complimented for maintaining the general excellence of the Journal, and notwithstanding the rapid rise in costs to show so small a deficit.

C. F. HEGNER

R. G. SMITH

R. E. HOLMES.

Upon conclusion of the report, by a motion, duly seconded and carried, the same was adopted as read.

### Fourth Meeting of the House of Delegates, Sept. 9, 1920

The House of Delegates met at 8 o'clock a. m. pursuant to adjournment, and was called to order by the President.

The Secretary called the roll and the President announced a quorum present.

The minutes of the previous meeting were read and approved.

It was moved by Dr. Hegner that a vote of thanks be extended to the Durango Exchange and to the San Juan Medical Society for their kind invitation to hold the next meeting of the Colorado Medical Society in Durango.

The motion was seconded by Dr. Carmody, and upon being put to a vote was unanimously carried.

On motion of Dr. Epler, seconded by Dr. Holmes, a vote of thanks was extended to the City of Glenwood Springs, and to the hotel management, as well as to the Committee on Arrangements, for their hospitable entertainment during the sessions of the convention at Glenwood Springs.

#### Election of Officers.

On motion of Dr. Jackson, duly seconded, the Secretary was instructed to cast the ballot for the nominees suggested by the Nominating Committee.

The Secretary thereupon announced that he had cast a ballot for the following nominees, and the President declared them elected:

President—H. A. Smith, Delta.

Vice President—

1st, W. V. Mullin, Colorado Springs.

2nd, F. W. E. Henkel, Silverton.

3rd, R. S. Johnston, La Junta.

4th, Carbon Gillaspie, Boulder.

Secretary—F. B. Stephenson, Denver.

Treasurer—W. A. Sedwick, Denver.

Publication Committee—Philip Hillkowitz.

Delegate to the American Medical Association—J. N. Hall, Denver.

Alternate Delegate—C. F. Hegner, Denver.

Meeting Place—Pueblo.

The following remarks were made by Dr. Jackson:

In the report of the Committee on Public Policy and Legislation were several recommendations which were referred to the Reference Committee and afterwards reported back to the House of Delegates and adopted, or endorsed, with reference to the public policy of the Society. It occurs to me that these recommendations and the action of the House of Delegates should be included in the report of the House of Delegates to the General Session, and I would therefore move that these recommendations be included in the report of the House of Delegates to the General Session.

The motion being put to a vote, was carried.

Dr. Wetherill then made some remarks with reference to an opportunity being offered the mem-



bers of the House of Delegates to make nominations from the floor.

Dr. Jackson thereupon moved the following motion:

"I move you, Mr. President, that the President, the Secretary, the Chairman of the Committee on Public Policy and Legislation, and the Committee on Social Medicine, be authorized to organize a campaign committee to look after the interests of campaign legislation which has been endorsed by the Society."

The subject was then discussed by the President and Secretary and various members of the House, after which discussion, the motion was withdrawn by Dr. Jackson.

Dr. Morrow then addressed the delegates on the advisability of having speakers throughout the state explain to the people the purposes of the various bills which the Colorado State Medical Society is interested in.

There being no further business before the House of Delegates, the meeting adjourned sine die.

CRUM EPLER,  
Secretary

## News Notes

Dr. Frankwood E. Williams, Assistant Medical Director of the National Committee for Mental Hygiene, was in Denver the latter part of September, having been delegated by the committee to study and aid in the work of Colorado's psychopathic hospital. The fact that our measure is an initiated one is considered to have an unusual bearing upon the future of like projects elsewhere.

A Colorado Springs branch of the American Society for the Control of Cancer was organized September 15 at a luncheon held at the El Paso Club, with Dr. C. F. Gardiner as chairman. Other members of the organization are Drs. Howard Swan, James A. Hart, Frank Dennis and Beverly Tucker.

Dr. Minnie C. T. Love of Denver is a candidate for representative on the state election ballot. The need of physicians of standing in our legislature is plain.

Dr. O. S. Fowler is a candidate for Regent of the State University. The medical school should be represented on the Board of Regents.

On account of the meeting in Kansas City of the American Academy of Ophthalmology and Otolaryngology on October 14, 15, 16, which will be largely attended by Colorado eye, ear, nose and throat men, the October meeting of the Colorado Ophthalmological Society has been postponed until October 23.

The incomes of doctors vary, like those of other professions. Some interesting figures on this subject, which, while not conclusive, are significant, have been gathered recently by the Committee on Medical Economics of the New York State Medical Society. They report that annual incomes from general practice in New York City average \$5,876, while specialists average \$12,717. In Brooklyn the average for general practitioners is \$5,691; specialists, \$11,691. In cities of the second class general practice averages \$3,635 and specialists \$8,604. In third-class cities incomes derived from general practice average \$3,554, and specialists receive \$6,439. In fourth-class cities general practitioners receive on an average \$4,766 a year, and specialists \$9,101. In large towns the averages are for general practice, \$5,275, and for specialists, \$6,175. In small towns the general practitioners

receive \$3,419 and specialists \$4,666. Institutional workers earn on the average \$4,002 per year.—Crain's Directory.

Free medical examination of the school children of Boulder will be given this year at the child welfare clinic, which will open Friday, Sept. 24, in the Woman's building.

## Medical Societies

### COLORADO OPHTHALMOLOGICAL.

The regular meeting of the **Colorado Ophthalmological Society** was held in Denver on April 24, 1920; Dr. Melville Black presiding.

E. T. Boyd, Denver, presented a brother and sister, members of a family of thirteen children, five of whom, including the two patients presented, had blue scleras and had each sustained three or more fractures of the long bones. Discussed by G. F. Libby.

E. T. Boyd, Denver, presented a woman who had a new growth near the corneal limbus. Discussed by W. C. Bane and Melville Black.

E. T. Boyd, Denver, presented a man who five years previously had been struck in the eye by a nail which he was driving. The lens of the eye had since become cataractous, and a foreign body, probably metallic, was visible in the anterior capsule. Discussed by E. F. Conant, W. C. Bane, Melville Black, and G. L. Strader.

H. R. Stilwill, Denver, presented a man whose left eye had been burned on March 8, 1920, by a splash from a motor battery containing strong sulphuric acid. At first the outlook had seemed fairly good. But the opacity had steadily increased, until at the present time there was very little vision, the cornea being opaque. There was also symblepharon of the upper lid to the eyeball. Discussed by E. T. Boyd, W. H. Crisp, D. H. Coover, G. F. Libby, C. O. Eigler and Melville Black.

C. O. Eigler, Denver, presented a man aged fifty-five years who for twelve years had suffered from double vision for all objects in the direct line of vision. The case was probably one of paralysis of the superior oblique muscle. Discussed by Melville Black.

J. M. Shields, Denver, presented a man who had had active pulmonary tuberculosis for the past five years, and who for two years had noticed failure of vision of the left eye. There were a number of small whitish spots around the macular region of the left eyeground. Discussed by H. R. Stilwill and W. C. Bane.

W. H. Crisp, on behalf of D. A. Strickler, Denver, showed a man from whose right eye a small particle of iron imbedded in the iris had been extracted with a hand magnet. At the same time the remaining lens substance had been washed out, and an iridectomy done upward and inward. The eye had shown steady improvement since operation.

W. A. Sedwick, Denver, reported a case of acute intoxication from the use of homatropin solution in a man of thirty-six years, who had had a cycloplegic used upon him nine times previously without any symptoms of poisoning. Although the drug was from a fresh supply recently obtained from a wholesale house of repute, the case should perhaps be regarded as one of acute hyoscine poisoning. Discussed by D. H. Coover and C. O. Eigler.

WILLIAM H. CRISP,  
Secretary.



## Book Reviews

**A General Introduction to Psychoanalysis**, by Prof. Sigmund Freud, LL.D. Authorized translation with a preface by G. Stanley Hall, President, Clark University. Published by Boni and Liveright, New York, 1920. Octavo of 406 pages.

For a review of this work the reader is referred to Original Articles, this issue, page 265.

**Diseases of the Chest and the Principles of Physical Diagnosis**, by George W. Norris, M.D., Assistant Professor of Medicine in the University of Pennsylvania, and Henry R. M. Landis, M.D., Assistant Professor of Medicine in the University of Pennsylvania, with a chapter on Electrocardiograph in Heart Disease, by Edward Krumbhaar, Ph.D., M.D., Assistant Professor of Research Medicine in the University of Pennsylvania. Second Edition, thoroughly revised. Octavo Volume of 844 pages with 433 illustrations. Philadelphia and London: W. B. Saunders Company, 1920. Cloth, \$8.00 net.

The second edition of this work, the first edition of which appeared in 1917, adds some sixty pages to the original text. In great part there is but little change in the text or illustrations.

The subject of influenza which in the 1917 edition was referred to only in connection with myocarditis, in the present edition occupies some twenty-three pages and is most capably handled.

"Chronic Inflammatory Conditions of the Lungs of Uncertain Etiology", which was not treated in the earlier edition is concisely handled in the present edition.

The chapters on physical diagnosis although not altered in this edition are well worth re-reading, and from a theoretical standpoint are above criticism.

Fluoroscropy as a means of diagnosis in chest disease is but briefly referred to. It seems unfortunate that a method which is in such general use amongst those interested in chest disease is not treated more in detail.

The text, binding and illustrations are above criticism.

A. S. T.

**Human Parasitology**. With notes on Bacteriology, Mycology, Laboratory Diagnosis, Hematology and Serology, by Damaso Rivas, M.D., Ph.D., Assistant Professor of Parasitology and Assistant Director of the course in Tropical Medicine, University of Pennsylvania, Octavo Volume of 715 pages with 422 illustrations and 18 plates most of which are in colors. Philadelphia and London: W. B. Saunders Company, 1920. Cloth, \$8.00 net.

The science of parasitology is of very recent origin, yet it is considered that at least one-third of human diseases are caused by parasites. The author of this volume is well qualified for his task by twenty years in teaching the subject and by study and work in public health laboratories and sanitary commissions at home and abroad. He has covered the whole area with conciseness and practical fullness, and has succeeded in producing, I think, the most valuable text-book upon parasitology in the English language. The manual is well indexed, with many pages of references, and is very attractively and effectively illustrated with 18 colored plates and 422 figures. In the disputed points of nomenclature the author has followed the rules of the International Committee upon

Zoological Nomenclature. Students or practitioners in need of a treatise upon parasitology can do no better than to purchase Rivas.

E. C. H.

**The Duodenal Tube and Its Possibilities**, by Max Einhorn, M.D., Professor of Medicine at the New York Post-Graduate Medical School; Visiting Physician to the Lenox Hill Hospital, New York City. Octavo of 122 pages with 51 illustrations. Philadelphia and London: W. B. Saunders Company, 1920. Cloth, \$2.50 net.

The author's preface states that in one decade the duodenal tube has shown its great value in the diagnosis as well as in the treatment of a variety of diseases. In this book Dr. Einhorn delivers a few lectures on the duodenal tube, giving a full resumé of what has been thus far accomplished by it. The purpose of these lectures, he continues, is twofold (1) to acquaint his colleagues with the actual facts obtained by the duodenal tube, in a manner that they can make use of them, (2) to facilitate the work of others who are willing to enter this field of investigation for further study. The opening chapter presents an historical sketch of the development of the duodenal tube and a description of the instruments used for obtaining the duodenal contents directly.

The following chapters deal with the analysis of the duodenal contents, the diagnostic import of the duodenal tube and the duodenal tube as a therapeutic means. Other instruments for the pylorus, duodenum and small intestine and the practical use of these instruments are described. The book is well illustrated and exceptionally well printed.

J. L. M.

**Flint's Physical Diagnosis**, by Austin Flint, M.D., LL.S. Late Professor of the Principles and Practice of Medicine and of Clinical Medicine in Bellevue Hospital Medical College. 8th edition revised. 12 mo. of 362 pages with illustrations. Philadelphia and New York, Lea and Febiger, 1920. Price, \$3.00.

The first part of this work takes up the physics of sound and its application to percussion and auscultation.

The second chapter takes up the physiological, pathological, and anatomical principles involved in percussion and auscultation.

There is next a portion devoted to the diseases of lungs, bronchi, and pleura, after which follows a portion devoted to disease of the heart and vessels.

There is a very small portion devoted to abdominal diagnosis.

The book is principally a treatise on percussion and auscultation of the chest; the rest of the body has been neglected.

A. R. L.

### NEW AND NON-OFFICIAL REMEDIES.

During August the following articles were accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Armour & Co.: Corpus Luteum Tablets-Armour, 5 grains.

Diarsenol Co.: Sodium Diarsenol: Sodium Diarsenol 0.15 Gm. Ampules; Sodium Diarsenol 0.3 Gm. Ampules; Sodium Diarsenol 0.45 Gm. Ampules; Sodium Diarsenol 0.6 Gm. Ampules; Sodium Diarsenol 0.75 Gm. Ampules; Sodium Diarsenol 0.9 Gm. Ampules.



# Colorado Medicine

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## *Editorial Comment*

### A LESSON FROM THE ELECTION.

When something is seen to be wrong there are two attitudes that may be taken with regard to it. One is to find in it something to complain about, and point out that it is hopeless because of the ignorance or wickedness of somebody in particular or the world in general. The other is to take it as a challenge to make things better.

There has been a great deal of the pessimism of the first attitude, among members of the medical profession, with regard to the mistakes of the public about the medical profession and the protection of the public health. But a few have accepted the challenge of the situation to go to work and make things better; and the results of the recent election in Colorado show that their courage and faith in the possibility of doing so is justified.

It was the active advocacy of a few, who meant to make things better, that induced the Colorado State Medical Society to endorse the "Educational Amendment", the "Psychopathic Hospital Bill", and the "Tunnel Bill"; and to denounce the "Chiropractic Bill" as an attempt to lower educational standards and serve the interests of a class of quacks, at the expense of the public health and the general welfare.

With this formal endorsement, this minority of optimists got busy in advocating these measures before the profession and the public. They stirred up many of the doctors to put the facts of the case before their patients; they sought opportunities to bring these facts before various organizations of laymen and women. The pessimists told these workers that the public would listen

to any quack rather than a regular doctor, would accept the widely advertised lie that the organized medical profession was a trust, trying to persecute its rivals; that the people were such ignorant fools that they would always vote wrong anyhow. They are answered by the results of this election.

It was the earnest work of the optimists that barely put the Psychopathic Hospital Bill on the ballot. The result bears out what Dr. Vaughan told us at the State Society meeting—that the people will vote gladly to supply the needs of good hospitals. The chiropractics, ready and able to spend large sums of money in advertising their "school", and expecting to get it back from their victims, were beaten because some doctors were willing to explain the facts, so that laymen could understand them and draw their own conclusions.

It is the first time that any large part of the medical profession has seriously undertaken to enlighten and influence public opinion and the voters of Colorado, with regard to medical affairs; and it was far from showing all that a united, determined medical profession might do in this direction. But it was a beginning; and as such we ought to take the lesson seriously to heart.

There are certain matters which it is the duty of the profession to force upon the attention of the general public. Of course, such work means that we must do some writing and talking to the public. The preservation of the splendid isolation and awe-inspiring dignity of the profession will never secure any such achievements of public education and wise action as these we now rejoice in.

We must use, and must make opportunities, to place before the people those things that we know, and they ought to know. This

is our duty as good citizens, and honest members of a great democracy. If the men with high ideals and good information will not assume the leadership of the people, with all of labor and unpleasant contact and criticism that leadership implies, have they any right to complain that the public is willing to be misled? Let this be the beginning of better understanding and closer cooperation between the medical profession and the public.

E. J.

### CONSERVATION OF OUR GREATEST ASSET.

The selection of Herbert Hoover for the presidency of the American Child Hygiene Association may be regarded not only as the most progressive move in the affairs of that thriving organization itself but also as an index of the interest manifested by the country at large in the various phases of child welfare endeavor.

In a stirring speech at the opening of the convention recently held at St. Louis, Mr. Hoover emphasized his desire to be of genuine service to American children and pledged the genius which has been responsible for the alleviation of so much suffering in the war zone to the improvement of conditions surrounding child life at home. We may confidently look forward, therefore, to a nation-wide extension of the activities of the Child Hygiene Association, a coordination in the work of its numerous affiliated societies and a general appreciation of our responsibilities in safeguarding the health and life of the young. As in Europe, this master of detail in organization will have in wholesome cooperation the American Red Cross, which has recently appropriated a substantial sum to further child welfare interests. Preliminary steps have already been taken to bring together all national groups interested in this subject, as recommended by Dr. L. Emmett Holt, following the medical conference of the League of Red Cross Societies at Cannes.

Certainly no one in possession of the startling facts revealed in our inexcusable mortality and morbidity rates among infants will question the need of a broader scope in every humanitarian agency. In enlisting the

marvelous energies and exceptional talents which he dedicated so unselfishly to the starving children of Belgium, Mr. Hoover has again demonstrated his unique fitness for world citizenship.

J. W. A.

### POSTGRADUATE INSTRUCTION IN COLORADO.

Over a year ago Dr. Edward Jackson outlined in these columns the adaptability of Denver as a graduate medical teaching center to serve a surrounding territory extending many miles in all directions, and the need of such a center to accommodate physicians who can not travel long distances to already established schools in the largest cities, east or west.\* A great drawback was stated to be the lack of a teaching hospital—meaning one modern in every sense and having as its dominant purpose the teaching of medicine.

The suggestion that the need of such an institution be brought before the public through some action of the State Society at its annual meeting seems to have brought no results, and such a hospital may be a long way off. However, at the Denver meeting in 1919, there was launched a scheme for carrying instruction into the doctors' territory, and, as it were, handing it to them; and upon this enterprise there embarked some sixty or more lecturers, selected from a number of Colorado cities. The plan was to send the chosen men out in groups of four so as to supply an evening of four lectures once a month to each county society in the district selected for the try-out. A list of subjects was arranged from which the lecturer could select one or more in his specialty. Thus the fields of medicine and surgery were fairly well covered. A feasible travel schedule was worked out.

The scheme proved a failure; at least it was not a booming success. Why?

Several reasons have been assigned, but do not appear sufficient, even collectively, to account for the sinking of the enterprise in its mid-course. At the Glenwood Springs meeting the blame was placed upon the teachers, who, it is said, got tired, would not brave bad weather and were responsible through their default for the failure of the

\*Colorado Medicine, August, 1919, p. 187.



course. Again, the audiences were not always of good size—discouraging to all concerned. Possibly the fact that regular meeting nights of the county societies were not chosen was a factor of the poor attendance.

But a closer analysis of the situation may show some inherent drawbacks in a plan which on its face appears clean-cut and workable.

There are a number of essentials for the enthusiastic reception of such an undertaking which should be considered. These are, first, that the profession served shall consider such a course to be to their advantage; second, that the lecturers shall be competent; third, that those who are to be taught shall recognize that competency; fourth, that there shall be a minimum of failure in meeting engagements. In other words, that lecturers of recognized experience shall take to an eager audience what it wants.

Granting that the desire for improvement is uppermost in the minds of most physicians, the first mentioned requisite is believed to be met, for the course itself was well laid out except for its calling for special meetings. The fourth, the meeting of engagements, was not satisfactorily accomplished, perhaps because of lack of interest on the part of certain lecturers, the inability of others to go because of professional requirements at home, and in other cases because of inclement weather; in all of which the long distances between Colorado towns played some part. Nevertheless, provided these teachers had something of value to carry to their audiences and that the men to be served felt they were going to hear something profitable, the occasional disappointments in engagements would hardly suffice to break up the enterprise.

Is it possible, then, that the fault lies in the selection of the teaching corps? Colorado is isolated by distance from teaching centers and must look to her own profession for the required instructors. We have in the state a considerable number of physicians of high attainments, some of whom are nationally, and a few more than nationally, known, who also have teaching experience. These men are looked up to by our state profession, are eagerly sought for addresses and papers, and will command attention at any time. It

was not possible, however, that so large a corps of teachers as the schedule called for could be made up entirely of such men, and a considerable portion of the force was filled by drawing upon others, who, while their experience and ability may be unquestioned, have the disadvantage of not being known as teachers. The staff may therefore have been wanting somewhat in the character of a "drawing card", with certain members. The doctors in the outlying towns, of Colorado, at least, are in many instances of the highest type of intelligence and training. There is nothing more unjust, nor anything which these physicians more resent, than their being classed as "country doctors" in the sense in which that term is usually applied; and these particular doctors are apt to be the ones who compose a county society. The whole county society membership would therefore resent having sent to them as teachers physicians whom they felt to be, we may say, not preeminent.

Another factor working against the success of certain teachers would be that they were too well known, by association, the acquaintance being intimate enough to preclude the enchantment that distance has been said to lend. "A prophet is not without honor save in his own country", and it is no doubt true that many of the staff of lecturers who would not be particularly well received in Colorado could address an audience in Kansas or New York and give complete satisfaction; and by the same token, a doctor will go a great distance to a large eastern city to accept with avidity teaching from one whose knowledge may not excel that of some physician in his local state whom he would spurn as an instructor. To speak plainly, it is probably the case that the failure of last year's extension course may be attributed mostly to a top-heavy corps of lecturers, some of whom did not command the interest of their equals and others of whom had the disadvantage of being too intimately known.

The teaching hospital plan will solve the problem of graduate medical instruction in Colorado, but until that can be accomplished, the extension method would seem to be worth while, provided the inherent defects of last year's plan be eliminated.

At the meeting of State Secretaries in Chi-

cago in November, one of the subjects to be discussed is that of postgraduate instruction, and the interchange of ideas at that meeting may be the source of valuable suggestions for betterment in extension work.

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### **A CLINICAL CONGRESS IN DENVER.**

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Real clinical teaching is always interesting and instructive. But when it means, not teaching at the bedside, but teaching in an amphitheater to hundreds of students, it simply amounts to didactic teaching with a patient for a text. The peculiar interest of close contact with disease is lost, and the success of the lecture depends wholly on the learning and eloquence of the lecturer. When the hearers sit on the benches and watch the heads and shoulders of the operator and his assistants, with an occasional report as to what is being found or done, to call it "clinical teaching" is absurd.

A few years ago a clinical congress of surgery was started in Chicago. The movement became so popular that the clinics of even the largest cities of the country were overrun and swamped. Then admission to each clinic was conferred by tickets, for which applicants waited in line, to find that the tickets were all distributed, or conferred standing room only, where no detail of the operation was visible.

The American College of Surgeons, having taken over control of the Clinical Congress, is striving to relieve the pressure of their national gatherings, where the crowds that assemble defeat their own purpose. To this end state branches of the Clinical Congress have been inaugurated. Such meetings have been held in Pittsburg, Butte, Boise, Portland and Seattle. Others are planned to be held this month in Phoenix, San Francisco, Salt Lake City and Denver.

The Denver meeting will occupy Friday and Saturday, November 26 and 27. Some of the officers of the American College of Surgeons will attend, with one or more prominent eastern surgeons. Diagnostic and operative clinics will be held each morning, and a resumé of these given and discussed in the afternoon. There will be a

luncheon given by the Civic and Commercial Association, and an evening meeting for the public, arranged in conjunction with the American Society for the Control of Cancer.

The opportunity to attend a good clinic is usually appreciated by the practitioner of medicine; and Denver should be able to furnish interesting and instructive clinics, that will allow those who come to actually see what is shown and done, and hear it intelligently discussed. The clinics will be conducted by Fellows of the American College of Surgeons and by others through invitation, and will be open for attendance to any member of the Colorado State Medical Society.

E. J.

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### **CANCER HANDBOOK FOR THE LAITY.**

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#### **What Everyone Should Know About Cancer.**

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In "Book Reviews", this issue, is a description of the above publication of the American Society for the Control of Cancer, with directions as to how copies may be obtained.

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### **BOULDER'S WATER SYSTEM SURVEYED.**

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In the reports of the Boulder County Medical Society for September and October (Medical Societies, this issue) is an abstract of a paper reporting on a rather complete examination of Boulder's water supply, which will prove of interest to the reader.

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### **CANCER WEEK, NOVEMBER 14-20.**

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No physician can fail to recognize the importance of the propaganda of the American Society for the Control of Cancer in educating the laity in the matter of early recognition and early treatment of that astonishingly prevalent disease. This is Cancer Week and the Secretary of each County Society has been requested to call an early special meeting of his society in order to arrange for lectures and such publicity as are outlined in printed material furnished him for guidance.

Let each secretary remember that he is carrying out the wishes of his parent organization in thus cooperating with the Society for the Control of Cancer.



# Original Articles

## WHY DIPHTHERIA? REASONS AND REMEDIES.\*

J. W. MORGAN, M.D., DENVER.

In 1915 there were 558 cases of diphtheria in Colorado and 52 deaths; in 1916, there were 372 cases and 68 deaths; in 1917, 586 cases and 90 deaths; in 1918, 620 cases and 80 deaths; in 1919, 557 cases and 59 deaths.

Twenty-five years ago the serum treatment of diphtheria was begun—lowering the mortality from thirty percent to about eight percent. This is fine, yet there is entirely too much of this disease, the bacteriology of which is pretty thoroughly worked out; the remedy is specific; the Schick test will tell whether the child is immune; and toxin-antitoxin inoculation will protect for years.

The blame for the presence of diphtheria may be divided about as follows:

- (1) Doctors,
- (2) The state,
- (3) The people,
- (4) Local boards of health.

Doctors: (Some of them) (a) Do not make a routine examination of the throats of ALL sick children. (b) Give too small doses of antitoxin. (c) Neglect to immunize the rest of the family. (d) Wait too long for the report of bacteriologist. (e) Do not take cultures from both nose and throat. (f) Do not make Schick tests and immunize with toxin-antitoxin.

State of Colorado: (a) Has no labora-

tory, hence can give no assistance in the detection of carriers. (b) Does not furnish free anti-toxin. (c) Does not furnish free Schick test. (d) Does not require the use of Schick test in its institutions.

The People: (Some of them) (a) Do not send for the doctor in time. (b) Do not observe quarantine.

Local boards of Health: (a) Do not provide school inspection. (b) Do not require pasteurization of milk.

The Schick test will tell if a child is immune to diphtheria; if not toxin-antitoxin will render him so for years. Why should it not be a routine measure?

Anaphylaxis: If suspected inject three drops of antitoxin. Wait two hours. If no unpleasant symptoms appear give the antitoxin with impunity.

Dosage: Table below shows the method advised by a large eastern department of health:

The question of the suppression of diphtheria resolves itself finally into the detection and cure of carriers. This the state is unprepared to do, having no laboratory in which the necessary tests can be made, i. e., the tests for virulency; and that is the one crying need of the State Board of Health. Let us hope that the incoming legislature will supply such need.

### DISCUSSION.

**Philip Hillkowitz, Denver:** Dr. Morgan has kindly requested me to say a few words on the Schick test. It is certainly strange that after the lapse of several years since Professor Schick announced his method of finding out the natural immunity of children to diphtheria the test has not been universally employed by physicians. A great many have never heard of it, and others are too apathetic to use it. It is a great boon to the pro-

Cases—	Mild Units	Moderate Units	Severe Units	Malignant Units
Infant, 10-30 Lbs.				
(Under 2 years) . . . . .	2,000-3,000	3,000-5,000	5,000-10,000	10,000
Child, 30-90 Lbs.				
(Under 15 Years) . . . . .	3,000-4000	4,000-10,000	10,000-15,000	15,000-20,000
Adults, 90 Lbs. and over. . . . .	3,000-5000	5,000-10,000	10,000-20,000	20,000-40,000
Method of Administration. . . . .	Subcutaneous or intramuscular	Intramuscular or subcutaneous	Intravenous or intramuscular	Intravenous

\*Read at the annual meeting of the Colorado State Medical Society, September 7, 8, 9, 1920.

fession on account of the fact that, especially among the poorer classes, to give an immunizing dose of antitoxin is bound up with a certain amount of expense. Also, if an immunizing dose is given the immunity probably lasts only a matter of thirty days. Diphtheria is one of the diseases which, in the near future, should be considered as a blot upon the civilization of the community that harbors it. As with many of the other preventable diseases, we will be considered criminally negligent in having any mortality from it. The Schick test is easily applied. It consists of a toxin, which, introduced intravenously in proper dose produces a reaction. It tells whether the child has a natural immunity, not requiring antitoxin. Where there is a family of several children that are susceptible, it is not necessary to give antitoxin to the immune children. The universal application of the Schick test will go a great way in preventing this disease.

**A Member:** How long before you get your reaction?

**Dr. Hillkowitz (Continuing):** You get your reaction in twenty-four hours.

Now, with this comes the question of immunizing the entire population against diphtheria by means of a toxin-antitoxin mixture. This has been worked out by the New York Board of Health at the Willard Parker Hospital. They are attempting to immunize the entire City of New York against diphtheria, taking children at certain ages, who are susceptible, and giving them such a series of graduated doses that they will acquire an artificial immunity. Dr. Morgan has done a service to Preventive Medicine by calling attention to this useful test. In enumerating the causes of its non-employment, he mentions the physicians and the local boards of health on whom he rightfully lays the blame. Strange as it may seem, he omits the State Board of Health of which he is a distinguished worker. Is it entirely blameless in the matter? However, I shall reserve my criticism of the State Board of Health for the discussion of the next paper.

**I. D. Rawlings, Chicago:** I was very much interested in Dr. Morgan's paper, and especially his attempt to put the blame on the medical profession. We, as you know, have a very different situation in a city which is highly congested. Chicago contains almost three-times as many people as your entire state of Colorado, and we have a large foreign element, and it is difficult to control the diphtheria situation there. We made a study of a number of diphtheria deaths there, some 232 death certificates being investigated. We sent out questionnaires, and went into this thing carefully, and found that the physician was first called on the first day in only 16 percent of the cases; one the second day in 10 percent; third day, 9 percent, and fourth day and after 32 percent; called on the day of death, 31 percent of the cases. The physician does not have a square deal to permit his doing anything to prevent these deaths in a large number of these cases; he doesn't get in until the fourth day of the disease in the majority of them, as that study shows. Then, we made another study of cases of diphtheria, that is, cases of diphtheria, not deaths, and we found in these cases that in 13.4 percent a physician was called the first day, 31 percent the second, 28 percent the third; a higher percent where they recovered; it was largely the fault of the family for not having called the physician, in cases of death, so the physician is not to blame nearly so much as the mother, in our population, at least, who delays by going to her druggist and letting him prescribe, thus temporizing until it is too late to save the

case, even if the doctor does give heroic doses of antitoxin, which we find is not the rule. The doctors are prone to give too small doses of antitoxin, and too few give large initial doses; it should be a large initial dose. We find also in Chicago that a large number of the physicians are prone to delay until they get a laboratory report. I am glad to say that we have free antitoxin furnished by the state to everyone, and easily available. I think we have sixty-eight supply stations in the city of Chicago where anyone in the neighborhood can go and get free antitoxin; but there is a tendency to delay for a bacteriological diagnosis.

**Victor C. Vaughan, Ann Arbor:** I want to say a few words about this thing. I am greatly interested in diphtheria, and have been for a great number of years. I practiced medicine in Michigan long before you ever heard of the Schick test. I know what a dreadful disease it was. In 1886 there was a new disease reported in a small village in the northern part of the southern peninsula of Michigan, and I went up there to investigate it. I saw diphtheria in every possible stage and form. I saw people paralyzed. There was a school in the little village, and when a child died, and nearly all the children did die, a recess was held for an hour and all the children went up to kiss the corpse. That was in '86. Older men, if there be such here, will remember the dreadful thing. A few years ago, eight or ten years ago, I was sitting in my laboratory one hot summer afternoon with my coat off, when three distinguished and very elegantly dressed Frenchmen entered. I know I was very much disturbed by the appearance of these elegantly dressed men. One of them said, "We have come to Ann Arbor to see the place where Henry Sewall made the first experiments on the immunization of pigeons to the venom of the rattlesnake, because those experiments laid the foundation for a discovery of diphtheria antitoxin." I was present at the International Congress in 1894 in a little crowded lecture room at the university when LaRue read his paper on "Diphtheria Antitoxin." Behring had before that announced his work, but even the Germans suspected Behring of commercial purposes in the matter, because he had put his product in the hands of the commercial men, but LaRue read his paper and gave the results. I saw what I have never seen before or since in a meeting of scientific men, which reminded me of a democratic state convention. There were there assembled from all parts of the world scientific men, and those men stood on their feet and tossed their hats to the ceiling and cried hurrahs in every language, and each one of us left, in 1894, with a bottle of diphtheria antitoxin; so I have been interested in diphtheria antitoxin ever since. Now, as has been very properly said here, we are not going to get rid of diphtheria by the use of the antitoxin.

I see only one possible way of getting rid of this disease, and that is the method that is proposed by Parke, the testing of every child at a certain age and the use of a toxin-antitoxin. Most children, as we know, at first are immune to diphtheria; in three months or six months they should be tested.

I don't want to go too much into detail. The deaths from diphtheria have been greatly reduced in the large cities; but the vital statistics, and the United States vital statistics, I must say, cannot be absolutely relied upon. It is amusing and disheartening. I had a row with the vital statistics department that reported the total death rate in the state of Kansas as from eight to ten per thousand. This row led me to go to Dr. Lyon, the



secretary of the State Board of Health of Kansas, and he said, "No, we don't use those figures ourselves." You simply overestimate the population of the state and you put the death rate away down, don't you see? You underestimate the population of a place and you put the death rate away up. Detroit and Flint, for instance, I believe have grown faster in the last ten years than any other two cities in the United States, or at least have grown very fast. I am not making any boasts about this, but the death rate of Detroit has been calculated on the rate of growth of Detroit from 1900 to 1910, and the last figures of the United States census gave it a population of about 600,000, when it lacked a few thousand of being a million.

Splendid work has been done by the Board of Health of Chicago, and I am glad the doctor is here representing that city. The majority of cases of diphtheria don't come directly—they come indirectly. How many diphtheria carriers are there in Chicago? It seems to me one of your last reports gave a good many thousand of known diphtheria carriers there. In Chicago, in 1911, they found 1,172 diphtheria carriers, and in 1917, 6,262 diphtheria carriers. That doesn't mean that is the number of carriers in Chicago. Multiply that by ten, multiply it by one hundred. The doctor knows that he can go on State street in Chicago, and stop every man, woman and child and examine their throats, and two percent will be diphtheria carriers. It is not those in quarantine. A carrier of diphtheria does not mean a man sick with diphtheria; it is the man who is well. I have been in the public schools of Ann Arbor; there was no diphtheria, and yet in every schoolroom we found diphtheria carriers.

And then another thing I am going to touch upon, and emphasize it more in my address, is this: In the small cities the death rate is as high as before the discovery of antitoxin. In some small places it runs up to 108 per 100,000. That is simply dreadful, isn't it? Now, suppose a doctor here in Glenwood has a case that he suspects to be diphtheria, what does he do, Dr. Morgan?

**Dr. Morgan:** I presume he takes a swab and sends it in to Denver.

**Dr. Vaughan:** And how long does that take?

**Dr. Morgan:** Oh, it is indefinite. The Denver and Rio Grande is very uncertain.

**Dr. Vaughan:** That is just it, indefinite, and that is the way it is all over this country. There must be in every community a laboratory where these examinations can be made; that is what I am getting at. But not until we learn that not only diphtheria, but typhoid fever, and many other diseases, are disseminated among us, not by the men who are sick, or the people who are sick, but by the well, will these diseases be controlled. I am sorry to say that most of the doctors in this country, myself included, have been rather slow to get hold of the newer aspects about antitoxin. This is a big question, and I am going to discuss it more fully later on.

**President Spencer:** I am very glad that Dr. Vaughan has taken the prerogative of discussing any paper in which he is interested, and I hope our other honor guests will feel free to discuss any of these papers, because we are always glad to hear from them. Dr. Beck, have you anything to say on this subject?

**Joseph C. Beck, Chicago:** I do not think I can add more to the subject, except perhaps from the standpoint of a laryngologist of a large hospital, county hospital, with nineteen years of service there in examination of throats, particularly crypts of the tonsils. At one time, my confrere, recently

passed away, and I did original work on the typhoid carriers and other carriers. We examined throats, or tonsils particularly, and sinuses, with reference to diphtheria and we came to the same conclusion, or rather the same facts, as Dr. Vaughan has stated here as to the organisms. We were surprised, but that was the result. The enucleated tonsils did not give the cultures of diphtheria bacilli we expected.

**Dr. Hillkowitz:** I wish to speak further about certain things which came up in the discussion of Dr. Vaughan, relating to the laboratory diagnosis of diphtheria. It has occurred to me that in a state like Colorado where communication is sometimes interrupted (and I have had complaints that it takes a long time to get a diagnosis by sending specimens to Denver), this difficulty can be easily remedied by the following expedient: Instead of one central point where doctors can send their specimens, the state, without being subjected to extra expense, should have several centers; for instance, the city of Pueblo might have a laboratory for diphtheria, so that the doctors there can make a diagnosis for the district in the neighborhood of Pueblo; and similarly in the city of Grand Junction. This would help a great deal; it would be a great boon to our physicians. Then there is the question of diphtheria carriers. This is a most perplexing problem, and it seems from the essayist's remarks that the whole thing centers on the matter of appropriations. I would like to ask him to tell us, after he has got the money, what he is going to do to remedy the trouble. I don't know anything that has yet been found to eliminate diphtheria carriers. I know in the city of Denver we have had them quarantined for indefinite periods without getting rid of the diphtheria bacilli. Various attempts have been made through tonsillectomies, and all kinds of disinfectants, and so far as I know no sovereign remedy has been found.

**Dr. Morgan:** The State Board of Health has no way of telling whether the carrier is a carrier of virulent or non-virulent germs. Cure of the carrier, according to the best information I can get, is tonsillectomy.

I am very glad to have started something. I think you have heard talks by men who know their business. I am also glad that you have brought up the subject of free antitoxin.

I think the reason we have diphtheria is that we have too many Christian Scientists, healers and doctors, who do not use antitoxin. You would be surprised—I don't think there are any such here—but there was a doctor in this state who refused to use antitoxin.

**President Spencer:** Before calling on the next essayist, I want to call on Dr. Moleen for a few remarks.

**G. A. Moleen, Denver:** I merely desire to supplement your remarks here by stating that we desire on the part of the members of the State Medical Society to urge the next legislature to make appropriations for those things which make for the betterment of conditions which we all recognize as necessary. I want to speak particularly of the campaign which has been made in the endeavor to realize a psychopathic hospital, thereby helping the conditions of the curable insane. I think with reference to the very question which has just been mentioned by the last speaker, that is the influence of the osteopaths, the Christian Scientists, the chiropractors and others—it does not benefit and profit us to get into the corners of the halls and lobbies of our office buildings and hotels and discuss what these people are doing. What we can do by concerted action is evident in

what we have done. So far as the psychopathic hospital is concerned, I wish to compliment you on the success of your efforts. We have placed before the legislature a bill; but since it is uniformly the case that legislatures have found it impractical and not economical to provide funds for the realization of the measures even though recognized as important, they could pass a bill providing for a psychopathic hospital, but they could not afford the money. They could afford \$50,000 to buy ice cream sodas for the boys in the trenches, but they could not afford \$50,000 toward a hospital for the curable insane of this state. As you probably know, at the last session of this Society and in the House of Delegates, I asked that the Committee be continued, and that they be instructed to proceed to the end of initiating a measure providing for the realization of this matter. Through the concerted action of the members of this Society, we have initiated a measure, and a sufficient number of signatures have been obtained by the members, so that I can say now that the bill will be placed on the ballot for public approval. As far as the Society is concerned, they have by concerted action achieved this object. It remains now for publicity to be given to the measure in order that it be realized by popular vote, and those of you who have circulated these petitions in order to get signatures know how fully in accord the public is when informed of the purposes of this bill; and I know there are very few of the Society, if any, who do not realize the importance of the construction of a modernly equipped laboratory and psychopathic hospital for the treatment and restoration of these acute insanity cases.

I hope I have not trespassed upon your time, but I did wish to inspire you to further action in the education of the public which is necessary between now and the fall election, in order that we may fully realize what we can accomplish by concerted action.

### **STATE MEDICINE; WHAT IS IT, AND IN WHAT DIRECTIONS SHOULD IT BE DEVELOPED?\***

VICTOR C. VAUGHAN, M.D.  
ANN ARBOR, MICH.

Mr. President, and Members of the Colorado State Medical Society:

I am under obligations to you for this opportunity to discuss with you a matter which I believe to be of great importance not only to the welfare of the profession in this country, but to that of the public as well. At the last meeting of the American Medical Association in New Orleans the Council on Public Health and Legislation was instructed to report at the next meeting of the association on "The Relation of the Medical Profession to the Public". The council has had one meeting in which this matter was dis-

cussed, and a committee was appointed to present for further consideration the subject to a meeting of the secretaries of the state medical societies, to be held in Chicago, November 11 of this year. I am endeavoring to ascertain the opinion of the profession in different parts of the country toward this matter, and I am going to take the opportunity afforded me by this hour to present to you my views on the relation between the medical profession and the public at large.

When one begins to talk about state medicine, most men, whether in or outside of the medical profession, begin to get frightened and cry out: "Is the state going to select and appoint our physicians, regulate the treatment of disease, name the remedies that are to be employed, and formulate and standardize the surgical procedures that shall be followed?" Many say that this is a form of paternalism which might have worked in Germany in the days of the supremacy of the Kaiser, but will not work in this, a free and democratic country. The laity says that it will listen to no such proposition, but will continue to select its own physicians, and, if it prefers, will have none at all. The practitioner himself objects and says, quite properly, that his will and his skill cannot be determined by government regulations. Both the laity and the profession are to some extent right with their understanding of what state medicine might be made to mean. Let us, however, reason together, investigate briefly the history of state medicine, inquire what it has done for the benefit of the profession and the race in the past, what it is now doing for the people, and what it may accomplish under proper guidance in the future. Is state medicine a form of paternalism, or may it be made a most effective agent for fraternalism?

The thoughtless man on the street or in the field is likely to say that his health, and even his life, are his own, and he has the inalienable right to subject either to such hazards as his inclination or his judgment may dictate. The thoughtless physician is prone to say that, so far, medicine has been developed solely by individual effort, that he has received no state aid in his professional

\*Address delivered at the annual meeting of the Colorado State Medical Society, September 7, 8, 9, 1920.



work, and desires none. Indeed, I heard a justly eminent surgeon recently say before the Michigan State Medical Society that the development of medicine, including surgery, to its present efficiency had been due wholly to individual effort, and that in this nation since its birth state-aided medicine has made no important contribution along either preventive or curative lines. Others will admit that state medicine has been beneficial and is even necessary in the prevention of disease, but claim it has no place, or at least no permanent place, in curative medicine.

Let us see how truth and falsity are mingled in such statements. The distinguished surgeon referred to got his primary and secondary schooling in the public schools of his native state, and his higher training at the state university. Does he not owe, in part at least, his present eminence and skill to state aid? Besides, and this is still more important, the majority of his clientele owe their ability to appreciate his services to like effort and aid on the part of the state. Medicine in this country certainly could not have reached its present high efficiency had the masses of the people been brought up in ignorance, and this would have been the case without the fraternal help of all; or in other words, by state aid.

However, a more direct showing can be made in favor of state medicine. Indeed, state medicine has played an important part in the development of the profession and in rendering aid to the people in health matters in all periods covered by recorded history. The oldest theory concerning the nature of epidemic disease was that it is due to some supernatural being who uses this weapon to chastise those who fail to recognize his supremacy by proper and repeated adoration as expressed in the frequent observance of prescribed rituals. But man has never, certainly not within the time since he began to transmit an account of his doings by oral tradition or in writing to his descendants, been so stupid as his creed would indicate. It is true that he has fasted and prayed when threatened by the pestilence, but at the same time he has employed more reasonable and practical methods to protect himself and his family against disease. Moses was an early and highly effi-

cient health officer. He was shrewd enough to formulate his health rules and regulations in the semblance of religious observances. He strengthened his sanitary code by adding to it: "Thus the Lord, thy God, commandeth thee". When the early Christians were threatened with a visitation of the plague they besought the Lord for protection, but at the same time they established quarantine and maintained it by force, not hesitating to employ at times barbaric methods in its enforcement.

The pagans of the Roman period acted on the principle expressed so forcibly in the Latin proverb: "*Salus populi suprema lex est*", a fair translation of which would be: "The health of the people should be the chief concern of the state". Through all the ages, ever since man organized community life, the right of a community to protect itself against the introduction of infectious disease from without has been recognized by all, and today each nation defines its own quarantine regulations and, by common consent, imposes for the purpose of excluding communicable disease, such restrictions upon its commercial intercourse with other nations as it deems wise. By common consent the nations of the earth, even those only partly civilized, agree to this arrangement. Our government has the right to declare any other country infected with a dangerous disease and to impose such restrictions upon commerce with that country as it deems necessary. In international exchanges, even when commerce suffers thereby, each nation reserves the right to protect the health of its people, and this right is recognized and respected by all other nations. This is one principle in international law which is universally recognized. For instance, England has long been known as a free trade country, admitting most articles of commerce from any and all lands free of duty, but it always has and does now forbid admission, except under wise restrictions, of infected persons and things. This exercise of authority covers not only diseases to which man is susceptible, but those which afflict the lower animals, and even those which are confined to plant life. For years England was wholly free from rabies, because no dog was al-

lowed to be brought into the country except under regulations which made the introduction of the virus of this disease impossible.

In the matter of quarantine our nation goes further than any other. It stations medical officers at all important ports of departure of immigrants to this country. In these places those who are on their way to this country are forcibly detained by our own government and compelled to submit to examinations in order to ascertain whether or not they are carriers of disease. I think it highly probable that even well-posted physicians do not realize how largely the health of our country depends upon the wisdom, vigilance, and efficiency of our public health service. Cholera has sought admission to our land during the past thirty years repeatedly. It has tried the front, back, and side doors, and has endeavored to clamber through the numberless windows, but it has found no unguarded place. In the summer of 1911 when cholera was present in Italy, all immigrants from that country to this were held in detention and carefully inspected at Genoa, Naples, and other Italian ports before being allowed to embark for this country. Careful observation of their health conditions followed them across the ocean, and further detention and examination were required before they were allowed to disembark. Rodent plague was never so widely distributed as it is today, and still we are safe because of the vigilance of our quarantine officers along our entire coast line, from British Columbia down the Pacific, across the Gulf of Mexico, and up to the Canadian border on the east. With us, quarantine may be exercised not only against other nations, but one state may quarantine against another and one community against another in the same state. In our individual communities we go further and are permitted by the law to forcibly incarcerate any individual who carries a disease dangerous to the public health. During the late war we drafted between three and four millions of young men, and without asking the consent of any one of them, vaccinated every one of them against smallpox and typhoid fever, with the result that there was not a death from the former,

and only a small number from the latter disease among the millions.

No one questions the importance of state medicine in the prevention or restriction of communicable diseases. Let our national, state, and local health authorities cease their activities for one short month and our death rates would in all probability soon parallel those of the greatest battles of the late war. So universal is the recognition of the importance of state medicine in the control of the infectious diseases that state and preventive medicine are now regarded and spoken of as synonymous.

There is another line of state activity in medicine which has so abundantly and fruitfully demonstrated its value that no one now questions it. Some seventy years ago or more a small number of state universities began to make provision for medical education at state expense. Many men eminent in our profession at that time railed at this most vehemently. One of these, then a professor in a proprietary medical school now supplanted by a state-supported institution, told me that the state had no right to provide any form of professional education. It was in his opinion proper for the state to give its young men and women a fundamental education, but when it came to training them in knowledge which they could use in their professions it was all wrong. In other words, it was perfectly proper for a state to give a training which was to have no value, but as soon as that training became of value to the young man in after life the state had no right to aid him. Today medical education is so expensive and requires such elaborate equipment that there are only two classes of medical schools, the endowed and the state-supported. State support of professional education has made good so positively that no one now questions either its wisdom or its justification. During the middle ages colleges and universities were founded and supported principally for the purpose of teaching some religious dogma, and this still continues to some extent. Others were established in order to perpetuate the founder's name. State institutions of learning exist for the purpose of making more intelligent and useful citizens, and intelligence and skill in profes-



sional work are essential to the development and well-being of the state.

There are still a few who question the wisdom of the state in giving aid to scientific research, and I have already referred to the statement made by a distinguished surgeon that in our country at least no important contribution has been made either to preventive or curative medicine by state or government aid. Let us very briefly and superficially scan this point. We will find that scientific discovery and even medical research have not gone altogether without the help and appreciation of the state. A few notable examples may be of interest. It is true that Jenner carried on his investigations which led to the discovery of vaccination for smallpox unaided by the state, but afterwards he was liberally rewarded by the British parliament. Pasteur was sent to the south of France to study the disease of silk worms and under like direction he began his work on fermentation which resulted in laying the foundations of modern medicine, and at the same time, in the most beneficial discoveries ever made by one man. Villeman was a French army medical officer, and without the time and opportunity furnished him by governmental employment he could not have laid the foundation of all modern knowledge of tuberculosis. The researches of Behring in Germany and of Roux in France which gave to the world the blessings of diphtheria antitoxin were rendered by state aid. The same is true of the prolonged and costly investigations of Ehrlich, who made syphilis a curable disease; and the same holds good for the work of Wassermann, who placed the diagnosis of this disease in its protean manifestations on a scientific basis. Our government sent Reed and his colleagues to Cuba to ascertain the nature of the transmission of yellow fever and placed Gorgas in charge of the sanitation of the canal zone, rendered the building of the great waterway a possibility, and promises the complete eradication of this disease from the globe. Today the Public Health Service supervises the manufacture of antitoxins and vaccines, tests their efficiency, and thus enables every practitioner to safely employ these valuable

aids in the treatment of disease and in the protection of those exposed to infection.

These are a few examples of the aid that the state has given and is giving in the prevention and treatment of disease. No man who investigates these subjects, be he layman or physician, can question the value of the support given scientific medicine by the state, nor can any well-informed man assert that medicine has grown to its present efficiency without state aid. I have endeavored to give briefly and imperfectly some idea of the importance of state aid in medicine, both in discovery and in application. Shall we attempt to enlist this aid in the further advancement of medical discovery and its application? I take it that the chief aim and ambition of our profession are to reduce the prevalence of disease to a minimum, to keep the well in health, and to reduce the suffering of the ill to the lowest point. I would not argue this matter if I had in view only the advancement of the medical profession, but I am sure that the good of the profession means the good of all the people. Many both in and without the profession understand this matter, and a variety of propositions are being made to render medicine more effective.

As I said in the beginning, I am seeking to ascertain the best way to make medicine more efficient in both the prevention and treatment of disease. During the past few months I have gone over very carefully the figures found in the United States Mortality Statistics. In doing this I have been very much impressed with the fact that while during the past ten or twenty years the death rate, especially from the infectious diseases, has been satisfactorily decreased in the large cities of the country, a like satisfactory result has not been obtained in the smaller cities, villages, and rural communities. Take diphtheria, for instance. During the last ten years there have been many epidemics of this disease in the small cities with a death rate higher than that of pre-antitoxin days. In 1912 the death rate from this disease in New York City was 22.3 per 100,000, while in Windhamton, Connecticut, it was 136.8; in Vincennes, Indiana, 107.1; in Berlin, New Hampshire, 193.1; in Homestead, Pennsylvania, 109.7. The same is true

in a general way of scarlet fever, whooping cough, measles, and other infectious diseases. We all recognize the fact that as a nation we are becoming too highly urbanized. Still there are many inducements which lead the young man to go to the city, and one of the most valid of these is the better protection that he has against infection and the better treatment that he secures if he becomes infected. I am proposing that a model bill be framed for submission to the legislatures of the several states at their next session, providing for a health community center with a hospital. This bill should in my opinion be simply an enabling act, permitting any county or section of a county to constitute itself into a health center and build a community hospital. The control of such a hospital should be under local direction, but with state supervision, in order to see that the work of the hospital is kept up to standard. There should be in such a hospital at least one bed for every 500 inhabitants of the community or the district. The hospital should be built and equipped and the salaries of the permanent staff should be paid by taxation of the people. A part of this tax should fall upon the state at large, while another portion should fall upon the people of the community concerned. The hospital would consist of several units: (1) A general hospital; (2) A tubercular pavilion; (3) An infectious disease pavilion; (4) A laboratory section; (5) A home for nurses. The staff of this hospital should consist of (1) A commissioner of health of the community, who would also be director of the hospitals and laboratories; (2) A surgeon; (3) An internist; (4) A laboratory man; (5) A certain number of trained nurses.

There should be in the hospital a small lying-in room. There would, of course, be x-ray facilities. This hospital and all its facilities would be at the service of the people and of the practitioners of the community. A physician having been engaged to take care of a case of labor could, if he and his patient preferred, have his patient go to the hospital a few days before labor and there, in an aseptic room, and under aseptic conditions, and with facilities for any emergency that might arise, could conduct his

confinement case. Suppose that a case of scarlet fever occurred in a family under a local physician's care. This case could remain in the home if the doctor in charge and the family desired, or it could be carried to the infectious disease pavilion, where the patient would remain under his doctor's care.

Suppose that a doctor had a case of laceration of the muscles of the thigh. He could take this case to the hospital where he would have an aseptic room for operating and where the surgeon of the hospital might assist him. The local physician would not be under the necessity of sending the swabs from suspected throats or the sputum from the suspected cases of tuberculosis to the State Board of Health laboratory, but examinations could be made in the hospital. If the local physician had a patient with any disease who needed a nurse, one of these nurses from the hospital might be called upon, the patient if able might pay for this nurse, and if not able to pay, the nurse would be forthcoming at any rate.

If the local doctor wished an x-ray examination of a patient this could be done in the hospital. In other words, my idea is to supply a hospital furnished with all up-to-date equipment in every community. The community hospital should be under the charge of a local board who should assess patients for hospital care according to the ability of the patient to pay. It cannot be denied that an up-to-date diagnostic hospital is needed in every community. At the same time, it must be admitted that the physicians, except under unusual conditions, cannot afford to establish or maintain such hospitals. I have come here with the idea of presenting this matter in brief, and I hope to get suggestions. It is my intention to try to draft before November 10th, when the secretaries meet in Chicago, a bill to be presented at that meeting, and I hope to have it ready for submission to the several legislatures at their next meeting. I am not going into detail because I am not ready to do so. After forty years as a practitioner of medicine I must admit that the present method of practicing our profession is unsatisfactory and without best results. In the future in every community there will be



a diagnostic laboratory connected with a hospital thoroughly equipped in every respect, where any citizen in the community may have a thorough examination, and where experts in different branches of practice may pass upon the same patient. It is understood, of course, that the director of the community hospital would be health officer for the community, and that under his direction school inspectors and visiting nurses would operate.

In the larger cities diagnostic clinics, tuberculosis dispensaries, hospitals and sanatoria, baby welfare and pre-natal clinics, lying-in hospitals, etc., are already being established and functioned at public expense. Those who are truly interested in the national welfare are becoming alarmed at the overcrowding of our cities and the depopulation of our rural communities, but under present conditions there are many good reasons, apart from the greater remuneration which he receives for his labor, why the intelligent young man should seek the city rather than the rural community for the location of his home and the place where he is to rear his family. On the farm or in the village he must send his children, sometimes long distances in all kinds of weather, in the winter over unbroken roads, to the little, stuffy "red school house", where there are no adequate toilet facilities, where poorly paid, incompetent teachers are in charge, where there is no medical inspection, and, in short, where all the conditions of life are most primitive. When one of his children falls ill of a communicable disease it must be cared for in the crowded home in the closest contact with the other children, attended by a physician who must travel miles in making daily calls and is inadequately supplied with the outfit essential to correct diagnosis and proper treatment. When an emergency arises in treatment the physician realizes how greatly he is handicapped. As I write this, memories, most painful, of being compelled to do more than one tracheotomy in an isolated farmhouse by the light of kerosene lamps, thirty years ago, come to me. In the city the children skip over broad, clean pavements to the palatial school, where the sanitary conditions surpass those of the average home. The med-

ical inspector and the trained nurse have the children constantly under supervision. When a child is stricken with diphtheria, it is not sent home to endanger the lives of younger brothers and sisters, but to the infectious disease hospital, where the intern and the nurse are in constant attendance, and where, when an emergency arises, every modern facility for meeting it is at hand. It is useless to advise "back to the village and the farm" until the health conditions of these places of residence are improved.

I am in hearty sympathy with the rapid advance in socialized medicine, both along preventive and curative lines, so evident now in many of our cities, and I desire to see them applied to every part of the land. However, I do not believe in forcing them. The public should demand them. The people should be willing to pay for them. It is, in my opinion, only fair that the community which is wise enough to take this step should be aided financially by the state at large. The state must have supervision of these community health centers in order to keep them properly functioning.

What I have said of the pull of the city on the average man applies to the physician along with the rest. The intelligent graduate is fully aware of the disadvantages of rural practice. With him the financial inducement toward the city is not, in my opinion, the greatest. He knows that in his country practice he will be isolated, he cannot afford the costly equipment for successful diagnostic work, and in the treatment of his cases he will labor under many obvious disadvantages. The community health center with its laboratories and hospital provisions will be helpful to both the practitioner and the community. A short time ago I had a visit from a manufacturer whose works are located in a charming lake-shore village in Michigan. He was in search of a young doctor for the village. After hearing him enlarge upon the attractions of the place, I asked: "Does your family live in that village?" He replied: "No, my family lives in Detroit. I moved there in order that my children might have the educational and sanitary advantages of a large city". I replied: "Then you ask me to advise a young doctor with the prospect and hope of rear-

ing a family to live in a place from which you removed your own family on account of the unsatisfactory educational and hygienic conditions. I cannot do so. You are a man of wealth. You have made your money in this village. Go back to it and make it a fit place in which one can make a desirable home, and then I will see that you have a most competent medical man''.

### **THE FAR REACHING EFFECTS OF RECTAL DISEASES UPON THE GENERAL HEALTH.**

**ATWATER L. DOUGLASS, M.D., DENVER.**

To bring out and enlarge upon all of the effects that an abnormal anus and rectum may have upon remote parts of the body would take up too much time and space to be published in a medical journal, for a book of large dimensions could be published and then not exhaust the subject. The profession in general has made rapid strides in all branches of medicine and surgery, but has not had its special attention brought forcibly enough to this branch of surgery. Physicians are apt to feel that rectal diseases are not important enough to require much attention, and feeling that way they will advise a patient consulting them for a slight rectal disease to wait until some other excuse calling for an anesthetic should arise, and then make the rectal feature a secondary consideration, when possibly if the rectal trouble was attended to promptly there would be no excuse other than rectal to call for an anesthetic.

The common diseases affecting the rectum are hemorrhoids, fissure, fistula, papillitis, cryptitis, fibroid growths and proctitis. Any of these diseases except possibly fistula may go on for years without any great amount of distress as long as the pathological process remains above Hilton's white line.

It is only when the disease reaches below this line that the patients are aware, through subjective symptoms, that they have any rectal trouble, and for that reason they neglect to mention the rectum when consulting their physician, thus allowing a possible simple condition to develop into a cancer,

stricture or some other serious disease. In the meantime, while these conditions are developing, the patient will be taking treatment for constipation, headaches, spinal trouble, rheumatism or some other group of symptoms without relief, when a thorough examination of the rectum and anus would reveal to the attending physician the underlying cause.

Under the control of the sympathetic nerves, the human body has one of the most perfect automatic mechanisms functioning at the outlet of the bowel that can be found in any part of our makeup. When these nerves are broken or disturbed in any way, the whole wormlike action of the colon ceases, thus allowing accumulations to take place, affecting different parts of the body through absorption of toxins. Taking laxatives does not remedy the trouble, for they simply irritate the glands of the intestinal canal and bring out more liquid which flushes out the new material while the old materials remain in the colon undergoing absorption and poisoning the whole system.

The sigmoid corresponds to a trap under a sink, with this exception, however, that when the sigmoid becomes filled it will automatically empty itself into the rectum, and this is when we have our first warning that there is something to be evacuated.

Should we fail to answer this call immediately, the nerves at the outlet become accustomed to having the substance there and they will not perform their function properly, then constipation with all of its far reaching results is started.

The disarrangement of this beautiful automatic action brings about a general stasis of the whole colon, and more or less accumulation of waste material remains permanently in the rectum, sigmoid, transverse colon and cecum.

Keeping this in mind, one can readily see how rectal diseases may be responsible for at least fifty percent of the cases of acute or chronic appendicitis. It takes but very little to upset the nerves of the rectum, and many times a very little or slight operation will remedy the condition before much damage is done.

If we had the same supply of so-called pain nerves above Hilton's line that we have



below there would not be enough men engaged in rectal work to supply the demand, for then the subjective symptoms would cause the victim to seek relief at once. Unfortunately this is not the case, and unless there is severe pain the tendency is to neglect to submit to a rectal examination, and to go on year after year receiving treatment for the symptoms developed in other parts of the body through reflex nerve action and absorption of toxins.

Any little growth just within the rectum, such as an elongated papilla, small ulceration near the crypts, a small fissure or a foreign body will develop some of the most distressing symptoms in other parts of the body, such as headaches, bladder irritation, rheumatic pains in the back and lower limbs, profound depression of spirits or extreme irritability, due to the resultant disturbance of the sympathetic nerves and absorption of toxins.

I recall a case in which a continual flow from the uterus was corrected by simply taking care of a fissure that had been in the rectum for a long time, without the patient being aware that she had any rectal trouble at all until the fissure extended below Hilton's line. The pain from this fissure brought her to me for examination, and in taking the history of her case I learned that she had had the uterus curetted upon two occasions for relief, but with no results.

After the fissure was healed the flowing ceased altogether, except at regular periods, and then in the proper amount only.

Another, a case of stomach trouble with vomiting of three weeks' duration, cleared up immediately following the cure of a case of internal hemorrhoids. I mention these two cases simply to illustrate how important it is to examine the rectum in any case that does not readily yield to proper treatment, regardless of what the disease appears to be or of the character of the subjective symptoms.

Many of the former horrors of rectal operation have been eliminated, and the public should be taught not only the importance of a rectal examination, but that the work does not necessarily mean a serious operation. There are very few cases that need be confined to a hospital or the home.

If the physician in general practice will form the habit of examining the rectum in his obscure cases he will not only bring about the relief from much suffering, but will enhance his own reputation as a diagnostician and gain more success.

311 Mack Building.

**MINUTES OF THE FIFTIETH ANNUAL SESSION OF THE COLORADO STATE MEDICAL SOCIETY, HELD AT GLENWOOD SPRINGS, COLORADO, SEPTEMBER 7, 8 AND 9, 1920.**

**September 7—First Day—Morning Session.**

The Society met in the ball room of the Hotel Colorado at 10 o'clock a. m., and was called to order by the President, Dr. F. H. McNaught. Dr. McNaught then introduced Dr. F. R. Spencer, President-elect, who took the chair as President of the Society. In assuming the chair Dr. Spencer made a short address in which among other things he dwelt upon certain proposed legislative measures in which he thought the Society should take an active interest.

The Scientific program was then begun:

Dr. J. W. Morgan, Denver, read a paper entitled "Why Diphtheria?—Reasons and Remedies", which was discussed by Drs. Hillkowitz, I. W. Rawlings, of Chicago, Victor C. Vaughan, of Ann Arbor, Joseph C. Beck, of Chicago, and by Dr. Morgan in closing.

Dr. R. L. Drinkwater, Denver, next read a paper upon "The Work of the Colorado State Board of Health", which was discussed by Dr. Hillkowitz and by Dr. Drinkwater in closing.

A paper by Dr. H. Eugene Stafford, Manilla, P. I., entitled "Remarks on Twenty-one Years' Observation of Tropical Surgery", was read by title, the author not being present.

**First Day—Afternoon Session.**

The Society reconvened at 2 o'clock p. m. and the presidential address of Dr. Spencer, entitled "Group Medicine of the Past, Present and Future", was then read and will be published in full in Colorado Medicine.\*

\*Editor's Note: See September, 1920, issue.

The President then invited remarks from Dr. Hubert Work, President-elect of the American Medical Association. Dr. Work, after making allusions to the fact that the Colorado profession numbers five presidents of national medical institutions, dealt with the subject of the President's address, Group Medicine, and the subject of post-graduate instruction, speaking in part as follows:

"I know by common courtesy that the President's address is not open to discussion, and I do not wish to discuss it but to compliment him upon it and touch upon a few of the things that he has mentioned in it, if he will permit. One of those is Group Medicine. I have been for several years an advocate of group medicine. The President has made personal mention of the Mayo Brothers, and perhaps I may be pardoned for doing so also. They have developed to perfection the business of group medicine. They are the greatest living exponents of group medicine. We know that those eminent men, eminent as specialists in surgery, may have many peers in the medical profession of the United States so far as surgical work is concerned, but no group of men or set of men has shown the organizing quality that they have shown. They have built up an institution there that is not equalled in the United States. They have demonstrated



that a patient may go there and be examined for what ails him and go away at little more, if any, cost than would be incurred for consulting a single physician. They have done tremendous good, both to the profession and to the country at large. Yet it might be well to stop for a moment to consider what the possibilities of that institution, or a similar one, would be if in the hands of unskillful and unscrupulous men, and to consider what damage they could do to the profession and to the public with the reputation that is gained by an organization such as that. If that will apply to an institution like theirs, it will apply equally to group medicine. The success of group medicine will depend, scientifically and practically, absolutely upon the character of the men who compose these groups. If it should develop that a given group should be commercially inclined, it will become an instrument of injury to the profession in the community and capable of great harm so far as work is concerned, and it would have a very bad effect on the community. It is the logical way to practice medicine. The danger I see in it, and the only danger in it, is that it may fall into the hands of commercial men and it might become known that members of groups are taking patients that come to them and passing them from one member of the group to the other and increasing the expense to the patient by such process. If such a practice is indulged in, it will become unpopular and will fail, and deservedly so.

"The President spoke of a postgraduate course that was instituted here a year ago. I was very much interested in that proposition. I think the thinking men of the profession in the country realize that there is a tendency to disintegration of the medical profession, and there is great danger of deterioration in this regard. In other words, the practitioners of medicine, possibly encouraged through our special societies, which are desirable, and through specialties, have a tendency to separate and each man to go his own way. This may be temporarily beneficial to the individual who practices it, but ultimately it means destruction to the medical profession as a scientific body of men. Unless we have a common interest and work towards a common point, we doctors who are practicing different lines of work (which we necessarily must) unless we remember that we are all members of this great profession, are going to scatter into cults; and people who would have cults, and socialists, if you please, who would have medicine done cheaper and for a nominal sum, will get in between us and scatter us and we will lose our effect. We will not be consulted in matters of national import in medicine until we realize that we are a cohesive body and are able to advise the nation in those matters.

"In regard to this postgraduate course, then, as I said, I think medical men realize that if the profession is to be held together, it must be done through some system of postgraduate instruction. We all will readily admit that we need this instruction and we need the contact of each other that it will necessarily produce. To prevent disintegration and scattering of the medical profession, there must be some system of postgraduate teaching developed which will revive the spirit that we all had when in medical college, derived from working towards a common purpose and in each other's interest to a common end. I am not clear, I have no definite plan as to how this should be brought about, but I know that it is necessary. This Society last year introduced a system of giving postgraduate instruction which consisted of forming groups of medical men to go out at given times and speak to county medical societies in the state. I think we made a definite start. Crude

as the method was, it was open to development; and the improvements that would necessarily follow could only be determined by this trial. In some communities it was successful. I was grieved to learn that the first county society in the state that fell was the County of Denver. We naturally have looked for many years to Denver as the center of medical thought and skill in this state. It was from the Denver County Medical Society that the greatest help would come, so we thought, and where we would get our strongest teachers that would be willing to go to the smaller counties and instruct; but they were the first to lose interest.

The doctors who went out from Denver, friends of mine, men of my own age and getting a little passé, as Dr. Sewall says, met with a storm. The storm was so severe that the physicians in the community could not attend; the attendance was small, and the team was delayed for a day in a small town, and it broke up. Nevertheless, in other counties the team work was kept up and the county societies were very much pleased with the work. Now, I certainly feel that this should be continued. Those counties that do not wish to co-operate, can stay out, but those counties that do wish to participate ought to have the opportunity. I feel it is only the beginning of what we will all recognize a little later as one of the essentials of success in medicine, that is postgraduate instruction."

Dr. O. M. Shere, Denver, next read a paper upon "Hypertrophic Tuberculosis of the Ileocecal Region; Medical and Surgical Aspects". The paper was illustrated by lantern slides, and was discussed by Drs. Tennant and Freeman, and by Dr. Shere in closing.

Dr. T. E. Carmody, Denver, read a paper on "Stenosis of the Esophagus", illustrated by lantern slides, which was discussed by Drs. Sewall, Joseph C. Beck, Moleen, Holmes, Stephenson and by Dr. Carmody in closing.

Dr. C. E. Tennant, Denver, read a paper upon "Abdominal Pain; Its Significance and Some Unusual Operative Findings". The paper was discussed by Drs. Hall, Sewall, Love, Holmes, and Dr. Tennant in closing.

#### First Day—Evening Session.

The Society reconvened at 8 o'clock p. m., to hear an illustrated paper by Dr. Leonard Freeman on "Operations Upon the Skull and Other Procedures Employed by Prehistoric Surgeons of the Americas".

#### September 8—Second Day—Morning Session.

The meeting was called to order at 10 o'clock a. m. The scientific program began with a paper by Dr. C. B. Ingraham, Denver, entitled "A Series of Cases Treated with Radium During the Past Year", which was discussed by Drs. Dean, Black, Shields, Joseph C. Beck and by Dr. Ingraham in closing.

Dr. C. N. Meader then read a paper entitled "The Field of Medical Education in Colorado", with which charts were presented. The paper was discussed by Drs. Carmody, Spencer, Victor C. Vaughan and Dr. Meader in closing.

Dr. Edward Jackson, Denver, read a paper on "Ophthalmoscopic Pathology" which was discussed by Drs. Black, Moleen, Magruder, and by Dr. Jackson in closing.

Dr. Wm. C. Finnoff, Denver, read a paper on "Tuberculosis of the Eye", which was discussed by Drs. Black, Spencer, Jackson, Sedwick, and by Dr. Finnoff in closing.

Dr. W. W. Wasson, Denver, read a paper entitled "A Study of Intrathoracic Movements", illustrated by lantern slides, which was discussed by Drs.



Stephenson, Miller, Fox, and by Dr. Wasson in closing.

### Second Day—Afternoon Session.

The Society reconvened at 2 o'clock p. m., and the scientific program was continued.

Dr. Joseph C. Beck, of Chicago, delivered an illustrated address on "Malignant Disease of the Head and Neck with Special Reference to X-Ray and Radium", which was discussed by Drs. Eichberg, Hillkowitz, Carmody, Freeman and by Dr. Beck in closing. The thanks of the Society were then extended to Dr. Beck by the President.

Dr. George A. Moleen, Denver, read a paper entitled "Observations on the Pathology and Treatment of Chorea", with presentation of a chart. The paper was discussed by Drs. Cooper, Miller, and by Dr. Moleen in closing.

Dr. C. O. Giese and Dr. L. A. Conway, Colorado Springs, read a paper entitled "Sudden Death Following Artificial Pneumothorax: Report of a Case with Autopsy". The paper was discussed by Drs. Simon, Crouch, Minnig, Schaefer, and by Dr. Conway in closing.

Dr. Tracy R. Love, Denver, read a paper upon "Certain Aspects of Gastrointestinal Dyspepsia Suggested by More Recent Methods of Study," illustrated by lantern slides.

### Second Day—Evening Session.

Following the annual banquet, in the dining room of the hotel, the guests were called to order to listen to an address by Victor C. Vaughan, of Ann Arbor, upon "State Medicine: Should it be Developed, and, if so, Along What Lines?" Following Dr. Vaughan's address Dr. George W. Crile delivered an address upon "Surgery of the Gall Bladder and Ducts". There being no provision for the showing of lantern slides in illustration of Dr. Crile's paper, that feature was postponed to the following morning.

### September 9—Third Day—Morning Session.

As the first order of business, a report of the Committee on Necrology was called for and was presented by Dr. Mullen. The report is as follows:

#### REPORT OF THE COMMITTEE ON NECROLOGY.

It is with deep regret that your Committee on Necrology has to report the loss by death of fifteen of its members since the last annual meeting.

Denver County Society reports the following:

Dr. Frank R. Coffman  
Dr. Abraham H. Faith  
Dr. Edward P. Hershey  
Dr. L. E. Lemen  
Dr. John Lindahl  
Dr. Herman H. Martin  
Dr. Thomas E. Taylor  
Dr. Alfred A. Woodhull  
Dr. Adolph Zederbaum

El Paso County reports:

Dr. Rozell McGlothery  
Dr. James A. Rutledge

Boulder County reports:

Dr. Henley W. Allen

Pueblo County reports:

Dr. P. H. Heller

Montrose County reports:

Dr. A. W. Knott

North East Society reports:

Dr. John Kenwood Dawson

Respectfully submitted,

WILLIAM V. MULLIN  
FRITZ LARSEN  
W. A. KICKLAND.

On motion, duly seconded, the report was accepted and ordered made a part of the records of the proceedings.

The usual report of the secretary to the assembly of the transactions of the House of Delegates was then called for and was presented by Secretary Epler. The report is as follows:

#### REPORT OF THE HOUSE OF DELEGATES.\*

The first session of the House of Delegates convened at 8 o'clock p. m., September 6, and was called to order by the President, Dr. F. H. McNaught.

The minutes of the previous meeting were adopted as published in the November, 1919, issue of Colorado Medicine.

The report of the Credentials Committee as read by the Secretary was adopted.

The following reference committees were named by the President:

Reference Committee on Reports of Committees:

C. F. Hegner, R. G. Smith and R. E. Holmes.

Reference Committee on Reports of Officers:

W. T. H. Baker, S. B. Childs and F. T. Stevens.

Reference Committee on Miscellaneous Business:

H. S. Henderson, C. N. Meader and W. V. Mullin.

Committee on Appropriations:

H. A. Smith, G. P. Lingenfelter and C. W. Thompson.

The reports of the Secretary and Treasurer, respectively, were read and referred to the Reference Committee on Reports of Committees.

The report of the Committee on Scientific Work was presented and referred to the Reference Committee on Reports of Committees.

The reports of the following committees were also read and referred to the Reference Committee on Reports of Committees.

Report of the Committee on Publication.

Report of the Committee on Medical Education.

The Committee on Public Policy and Legislation recommends:

1. A definitely organized effort in the Society to present the measure relating to the Psychopathic Hospital favorably to the voters in all parts of the state.

2. That the Medical Society in the State of Colorado place itself on record as favorable to the amendment to the constitution which increases the tax levy for the support of state educational institutions.

3. That an organized effort be made to oppose the efforts of those favorable to the initiated Chiropractic Bill, which creates a Board of Chiropractic Examiners.

4. That the matter of annual registration of physicians be referred back to the same Committee on Public Policy and Legislation with power to act.

5. That the Colorado State Medical Society endorse the bill to protect educational degrees.

The Reference Committee on Reports of Committees concurs in the above recommendations.

The Committee on Medical Education urges the need of a large appropriation for Colorado Institutions of Learning. The Committee on Reports of Committees suggest that this matter be brought to the attention of the members of the Society with the view of stimulating active interest favorable to legislation which will give adequate appropriations for educational purposes.

The Committee on Scientific Program suggests that steps be taken to make it easier for members

\*Editor's Note: The proceedings of the House of Delegates appear in full in the October, 1920, issue of Colorado Medicine.

of the Society to secure a place on the program and to obtain a more widespread representation. The Reference Committee on Reports of Committees recommends that the Program Committee start a campaign much earlier in the year with a view of more liberal distribution of members presenting papers, and a modification directed to relaxing the stringent requirements of the by-laws governing the action of the Program Committee.

Drs. T. E. Carmody, F. T. Stevens, W. W. Crook, W. T. H. Baker and C. E. Giffin were nominated and elected as members of the Nominating Committee

At the meeting of September 7th, Dr. Meader presented a report of the Committee on Miscellaneous Business, which report had the following recommendation: "This committee recommends that Art. VIII, Sec. 3 of the Constitution be amended to read as follows: 'The officers shall be elected on the morning of the last day of each annual session. In case of the election of any member of the House of Delegates to one of the offices mentioned in Art. VIII, Sec. 1, his seat in the House of Delegates shall be automatically vacated. No delegate to the American Medical Association may be elected to any other office during the term for which he was elected. No person shall be elected to any office who was not in attendance at any one of the two annual sessions next preceding his election.'"

Upon the suggestion of Dr. Morrow, the House of Delegates voted to endorse the so-called "Tunnel" bills.

The Nominating Committee reported the following nominations:

President: H. A. Smith, Delta.

First Vice President: W. V. Mullin, Colorado Springs.

Second Vice President: F. W. E. Henkel, Silverton.

Third Vice President: R. S. Johnston, La Junta.

Fourth Vice President: Carbon Gillaspie, Boulder.

Secretary: F. B. Stephenson, Denver.

Treasurer: W. A. Sedwick, Denver.

Publication Committee: Philip Hillkowitz, Denver.

Delegate: J. N. Hall, Denver.

Alternate: C. F. Hegner, Denver.

Meeting Place: Pueblo.

The above nominees were elected, the Secretary casting the ballot.

On motion of the House, the Secretary was instructed to draw a voucher for the expense accounts of the three invited guests during their stay in Glenwood Springs.

What you have heard is the adopted reports of the various committees.

This, I believe, concludes the work as required by the constitution and by-laws. As far as your retiring Secretary knows, that is all there is to be brought before you.

CRUM EPLER, Secretary.

On motion, duly seconded and carried, the Secretary's report was ordered on record as a part of the proceedings of the General Sessions to be published in Colorado Medicine.

On motion of Dr. Black, seconded by Dr. Jackson, a unanimous vote of thanks was extended to the retiring officers of the society. The retiring Secretary being called upon for a speech, responded as follows:

"Mr. President and Gentlemen of the Profession: I am somewhat embarrassed and somewhat gratified to be called upon for a talk, even by my friend Dr. Jackson. For seventeen years I have

done too much talking, possibly, in this Society. What I have done, however, during that long period has been as I saw it for the good of the Society. If what I have done has not been for the good of the Society, it has been a breach of judgment rather than an attempt to do the Society injury. I certainly appreciate, as I said briefly in my report, the co-operation I have had, not only of the various officers whom I have served under during the term of my office as secretary, but also of the profession in general, and our relations have been as pleasant as I could hope for, knowing myself as well as I do. I feel that at my age, and I am very much younger than I appear to be, it is high time for me to lay down the political end of the State Medical Society, and I do not wish you to understand that I have been the sole political end of the Society, because I see some few faces around here that have participated very much at times to my dislike. However, I feel that when a man gets as old as I appear to be it is time to pay attention to the particular line of business which he is trying to conduct rather than to try to pay attention to all the other doctors' business in the state. Therefore, I assure you now that in retiring, while I shall be in attendance at these meetings, I shall not disturb you with matters which are political. I thank you very much."

Dr. George W. Crile next showed lantern slides illustrating his address which had been delivered the evening before, after which, on motion of Dr. Jackson, seconded by Dr. Sewall, a rising vote of thanks was extended Dr. Crile for his address and his presence at the meeting.

Dr. J. B. Crouch and Dr. F. A. Forney, Woodman, then presented a paper entitled "Roentgenographic Studies in Asthmatic Bronchitis", illustrated by lantern slides. The paper was discussed by Drs. Minnig, Mullen, Spencer, Love, Meader, H. A. Smith, and by Dr. Crouch in closing.

Dr. H. J. Corper, Dr. O. B. Rensch, and Dr. S. Simon, Denver, presented a paper entitled "Studies in Artificial Pneumothorax upon the Rabbit", which was discussed by Drs. Crouch and Schaefer, and by Dr. Simon in closing.

Dr. George W. Miel, Denver, read a paper entitled "Arthritis—Sacroiliac and Lumbosacral; Usual Types Due to Overstrain", which was discussed by Drs. Epler, Moleen, Chipman, and by Dr. Miel in closing.

Dr. Lewis I. Miller, Denver, read a paper entitled "Branchial Fistulae; with Report of a Surgical Case", illustrated with lantern slides, which was discussed by Dr. Stephenson.

The Scientific program having been completed, the President declared the meeting adjourned.

J. CRUM EPLER, Secretary.

## News Notes

Friends of Dr. C. D. Spivak of Denver are happy at once more encountering his genial smile in his old haunts after his extended sojourn in foreign parts. The editor hopes to have some little account of his trip at a later date.

Dr. Crum Epler of Pueblo has returned to duty from Philadelphia where he was engaged in post-graduate study along the lines of brain and nervous system.

Dr. H. G. Witherill has gone to California to spend the winter. He expects to be home in Denver by May 1st.

Dr. Arnold Minnig of Denver has announced the removal of offices from the Metropolitan Building to 318 Mack Block.

Mr. Ture W. Schoultz, M.G., Stockholm, Sweden,



has announced the opening of offices in the Metropolitan Building, Denver, for Massage, Swedish Movement Treatment and Electro-Therapy, and states that patients will be received from reputable physicians only. The ethical character of this announcement should attract the patronage of physicians who may prescribe such measures.

Dr. B. A. Filmer, P.A., Surgeon, P.H.S., formerly of Denver, later engaged in Public Health Service work in Washington, has been transferred to Denver, where he will again be in contact with many old friends.

Dr. Jesse Wilbur Calkins, who will be remembered by graduates of Denver and Gross of some years back, has announced his marriage in Berkeley, California, to Mrs. Mary Elizabeth Richards, September 27, 1920.

The following Colorado doctors have been honored with fellowships in the American College of Surgeons: Edward F. Dean, Thomas M. Burns, Foster H. Carey, Wm. H. Crisp, Hiram R. Stillwill, Denver; Wm. A. Kickland, Fort Collins; Beverly Tucker, Colorado Springs.

A Public Health Clinic has been launched in Fort Collins, to be held Thursday afternoons each week at which time two physicians and two dentists will be in attendance to make examination and give treatment. The public is invited to avail itself of the clinic and receive free examination and advice. A nominal sum will be asked for treatment.

Dr. C. D. Rilance of Denver has returned home after a three months' trip abroad.

A wag whom you would not suspect has said that the editor of the Denver Society's weekly reminder is the man who "puts bullets in the bulletin." We are thankful it is not mere bull.

A Denver physician, established four years, would like to share offices consisting of a reception room and a consultation room with another physician. Telephone Main 7411 or see the editor of Colorado Medicine.

The Denver Tuberculosis Society in a survey of certain Denver schools has examined 3,183 pupils and found among them 26 cases of active tuberculosis.

Boulder is to establish a public clinic as a part of the Boulder Public Health department. Two rooms have been provided in the City Hall where free examination and diagnosis will be made, treatment being left to the family doctor.

Dr. W. E. Buck, City Physician of Pueblo, has made the statement that all of the four hundred pupils of a certain school were vaccinated without a single objection being made.

At the meeting of the American Academy of Ophthalmology and Oto-Laryngology held in Kansas City, October 14-16, the President was Lee Masten Francis of Buffalo, formerly of Pueblo, Colorado. There were ten Colorado members present. Papers were read by: Dr. William H. Crisp, on Spasm of the Retinal Arteries; Dr. T. E. Carmody, on Ankylosis of the Temporomandibular Joint; Dr. Edward Jackson, on The Best Kinds of Papers for a Scientific Meeting. Five of the Colorado members were also called upon to open discussions on as many of the papers presented by others. Dr. William C. Finnoff presented the report of the Committee on the Etiology of Iritis. Dr. Finnoff also was elected Third Vice President, and Dr. T. E. Carmody was elected one of the new Board to Conduct Examinations in Oto-Laryngology, whose examinations will hereafter be required of applicants for entrance to this organization.

## El Paso County News.

Dr. J. V. Schofield has resumed practice after a year's absence on account of his health.

Dr. E. Timmons has returned from St. Louis, where he took postgraduate work in pediatrics.

Drs. Shands, Faust and McClanahan have recently returned from a visit to the Mayo Clinics.

Dr. Beverly Tucker at a recent meeting of the American College of Surgeons was admitted to fellowship. Dr. Tucker was one of seven Colorado surgeons so admitted.

Dr. C. R. Arnold has returned after a month's vacation in California.

Dr. Hanford is visiting in Montreal and New York.

## Medical Societies

### BOULDER COUNTY.

At the Boulder County Medical Society meeting September 14, 1920, Dr. J. R. Barber, City health officer, gave a report on "The Water Supply of Boulder, Colorado," as abstracted below:

"Historically, the Boulder water supply has shown a series of moves upstream, the head works having been moved from a point a few miles up Boulder canyon to a point just below the mountain summits. The first move was made because of the opening up of mines and the establishment of mining camps, the town of Nederland chiefly. The last move was made because of the marshy nature of the terrain around the old intake, the presence of a cattle ranch just above, and the contamination of the water in one of the branches of the creek from a mining camp located several miles above.

"As a result of the charges made in the public press at various times during the last year, and especially this fall, an investigation was made during the latter part of August. This comprised a set of bacteriologic examinations, a chemical analysis of the water from the intake, and a sanitary survey of the catchment area.

"The survey showed that this area, approximately nine square miles in extent, is either above timber line or covered by a dense growth of pines. It is unoccupied, except for two camps, one that of the caretaker, who lives alone on the shore of Silver Lake, and one belonging to the contractor for work on the Silver Lake dam, this latter camp being located a little below the dam and near the creek. Silver Lake is the main lake of the water-shed, receiving the inflow from the Albion Lake chain and from the chain comprising Goose Lake and Island Lake. There were at the time of inspection about half a dozen men and four horses in the contractor's camp. Excreta and manure from these camps are carried away by the caretaker and dumped on the ground off the water-shed, on a slope leading to a creek that does not flow into the intake. Campers and fishermen are kept off the area by the means of a fence, with a locked gate on the only road, and also by the vigilance of the caretaker, who has had to make one or two arrests this fall.

"Careful search for polluted ground revealed nothing; the old university camp is now abandoned and has been left in excellent sanitary condition; no cattle were seen in the area, and it is not believed that there will be more than a very few that will get past the fence that has been put across the lower end of the water-



shed. This area is shaped so that there is a bottle-neck at the lower end, less than half a mile wide, thus facilitating the fencing.

"Criticism of the present water supply is based upon the premise that a bacillus carrier might get on the catchment area, that he might deposit feces or urine there, and that the bacilli might be washed by heavy rains and get into the pipeline. Critics maintain that the water should be recognized frankly as contaminated, and that a water treatment plant, consisting of a settling basin and a sand filter, should be installed. To this the Health Department replies that this criticism and this recommendation are ill-founded, and for these reasons: First, there has never been a case of intestinal disease traced to the water supply. Second, the bacterial count has always been exceptionally low, never more than thirty colonies to the cubic centimeter, and the colon bacillus never has been found in less than five cubic centimeters. Since the four horses of the contractor have been removed, no colon bacilli have been found. Third, the chemical analysis shows an exceptionally low amount of organic material, and gives absolutely no evidence of contamination. And, finally, the inspection showed no contamination of the soil by man, and very little indeed by animals. The precautions that have been taken are deemed to be adequate, and the problems to be met in the future are considered to have been studied well, and to have been well provided for.

"The future of the Boulder water supply will rest on two bases, the acquirement of more land on the water-shed by the city, and the policing of the catchment area under the state laws regarding the pollution of water supplies. Certain lands, mining and timber lands, on the water-shed, are now privately owned. Should the attempt be made to cut the timber, or to work the mines, it will be necessary to put on a watchman, with policing powers, to see that pollution of the soil is not allowed to occur. It is the belief of the Health Department that with careful policing and with continued efforts to acquire more land, the City of Boulder may feel secure of the wholesomeness of its water supply."

M. L. JOHNSON, Reporter.

At the regular meeting of the **Boulder County Medical Society**, held October 13, 1920, Dr. J. R. Barber presented a paper on "The Relations of the Health Department to the Community," which is here abstracted:

"The Health Department of any city comes into contact with the people in several ways, aside from that of its relation with the individual citizen. It meets with the business interests, both unorganized and organized into associations; it meets the welfare bodies, both official and unofficial, and it meets with the professional societies. These professional bodies, as far as they have been observed in Boulder, comprise the Teachers, the Parent-Teachers, and the Medical Society. They constitute a great and influential portion of the public interest, and with them the Health Department is vitally concerned. From the Medical Society in particular, the Health Department hopes to obtain a great deal. It needs information, advice, doubtless in some cases it needs correction, and above all, at all times, it needs co-operation and professional help. There is no other source from which it can obtain these necessary things. The Medical Society is composed of educated men, trained in the profession which, while not identical with that of Public Health, is so nearly the same as to be capable,

better than any other, of working in harmony with it, and should the Medical Society fail in this respect, the Health Department will also fail, and will revert to the old-fashioned functions of the abating of nuisances, the putting on and taking off of quarantine, and the half-efficient collecting of vital statistics.

"There are certain questions now pressing upon us in Boulder, and to solve them the Health Department now calls on the Medical Society, the organized body that represents the profession. Questions as to the public clinic, the child welfare work, the school inspections, the follow-up work, the nutritional classes in the schools, and the education of the public in sanitation, these are before us, and as they concern the medical profession most vitally, we, representing the Department of Public Health, ask you, the County Medical Society, for your wisdom, strength, and skill in deciding these questions and in executing these activities. The pressing matter just now is that of the clinic. We wish to work in co-operation with the Tuberculosis Association, and we want the opinion of your society as to these details: Shall there be a clinic? How often shall it be open? How shall the patients be selected for it? What shall they pay, and how shall we determine which shall receive free treatment? And what shall be our relations with the profession of the city, with the welfare bodies, and with the schools? We ask that the society take these matters under advisement."

M. L. JOHNSON, Reporter.

#### CITY AND COUNTY OF DENVER.

The first meeting of the season of the **Medical Society of the City and County of Denver** was held September 21, 1920. President Taussig presided. There was a large attendance. The following were admitted to membership in the Society: Drs. Harry Toulmin Lay, Giovanni Perilli and Edgar A. Peterson. At the business session Dr. Hickey reported on the efforts of the Public Policy Committee with reference to obtaining room number and office hours as an accompaniment to physicians' names in the telephone directory. These efforts were unsuccessful.

Dr. W. A. Jayne reported at length upon the work of the board of trustees in trying to obtain from the new owners of the Metropolitan building an extension of the one-dollar-per-year rental arrangement for the library and assembly hall, which had existed previously to the change of ownership of the building. A five-year extension was secured with a tentative verbal agreement on the part of the trustees to retain the quarters for the society for the period stated. After the business session a scientific program was carried out as follows:

Dr. Jackson by request gave a cursory verbal report of the transactions of the House of Delegates at the recent annual meeting of the State Society. He dwelt particularly upon the small attendance of delegates at the first meeting and upon the fact that committees which should have reported at that meeting were not present, the reports having to be postponed. He suggested as a partial remedy for this state of affairs that the habit of choosing delegates and alternates so far in advance of the state meeting as has heretofore been done be changed, and it was his notion that if the delegates only were elected in January the alternates could be elected at a much later meeting when they could be selected with a view to their ability to attend the meeting; his argument was that few doctors could know



in January whether they would be able to attend the meeting in September or October.

Dr. R. G. Packard showed a case of corrected torticollis in a young man 21 years old who had had torticollis since babyhood with a drawing of the face to the right and an inclination of the head to the left shoulder. An operation was done which consisted in severing the left sterno-cleido-mastoid muscle at its lower attachments and supporting the head in a position somewhat opposed to its previous position—chin up, head slightly to right—by means of the modified application of a jury mask which was worn night and day for two months. The result was extremely successful, the patient showing almost normal symmetry of the head and neck. Discussed by Dr. H. W. Wilcox.

Dr. J. N. Hall gave an address on the subject of chronic appendicitis, citing many cases of the disease in which previous chronic symptoms had existed for years without relief and without proper diagnosis; he decried the statement made by a noted diagnostician that there was no such thing as chronic appendicitis. Discussed by Drs. Ferris, Stephenson and Meader.

Dr. H. S. Finney followed with an account of his experience in an army hospital with cases of chronic appendicitis. In nearly all of the cases cited the diagnosis, based mostly on chronic symptoms, was confirmed at operation. F. B. S.

#### EL PASO COUNTY.

The regular monthly meeting of the **El Paso County Medical Society** was held in the Elks' Home, Wednesday, October 13. This was the first regular meeting of the society since June, and was attended by thirty-eight members.

September 3rd, the President and Board of Directors of the Manitou Springs Bath House Company were hosts to the El Paso County Medical Society at an informal meeting held in the new bath house.

Dr. J. C. Minor, of Hot Springs, Arkansas, delivered an interesting address on the subject, "Waters—Internally, Externally, Eternally."

The program for the October meeting was:

"The More Common Diseases in the Respiratory Tract of Children" .....Dr. J. F. McConnell  
 "Some Recent Observations in Psychotherapy" .....Dr. A. A. Blackman  
 "Medical Co-operation" .....Dr. T. Evans  
 Discussion was open to all.

Dr. E. D. Welsh was elected to membership in the society.

Mrs. Jessie McCallum Schenck has presented to the El Paso County Medical Society a part of the private medical library of her husband, the late Dr. B. R. Schenck.

C. E. RICHMOND, Secretary.

#### NORTHEAST COLORADO.

The **Northeast Medical Society** met at City Hall, Sterling, October 14, 1920. Drs. J. H. Bush, J. C. Chipman, M. R. Fox, E. P. Hummel and F. E. Palmer, were present. Dr. M. R. Fox read a paper on Acute Diarrhea in Children. The paper was discussed by Drs. Bush and Hummel.

J. C. CHIPMAN, Reporter.

## Book Reviews

**George Miller Sternberg; A Biography.** By His Wife, Martha L. Sternberg. Cloth. Price, \$5. Pp. 232, with illustrations. Chicago: American Medical Association, 1920.

From 1893 until 1902, General Sternberg was Surgeon-General of the United States Army. Some of his conspicuous achievements were the creation of the army medical school, organization of the army nurse corps and dental corps, establishment of the tuberculosis hospital at Fort Bayard, and the direction of the United States Army Medical Corps during the Spanish-American War. However, aside from his part of official leadership, he had already done much important bacteriologic work, and in the evening of his life after his retirement from active duty in the army, he interested himself in social service work with results to which the city of Washington will bear grateful witness even today. He is fortunate in having as his biographer his wife, Martha L. Sternberg, sharer in his trials and achievements, a sympathetic partner who reveals a grace of literary style and judgment seldom found in such intimate biographies.

The biography sketches Dr. Sternberg's early life, his Civil War record, his studies after the war and various stations which he held, an account of a trip to Europe, Indian battles, etc., and then in Chapter VIII comes an account of the beginning of Dr. Sternberg's scientific research. He was a member of the first yellow fever commission, did some work on malaria, discovered the pneumococcus, and did work on disinfectants which resulted in his receiving the Lomb prize. In 1893 he was appointed Surgeon-General, and without doubt succeeded, during his administration, in introducing into the corps the scientific spirit which was his greatest delight. In 1897 he became president of the American Medical Association. Unfortunately, his duties in the Spanish-American War prevented his attendance at the annual session in Denver. In his annual address, he displayed a general knowledge of medical interests surprising in a man whose work had been predominately that of a single bureau of the government.

The Spanish-American War naturally receives much attention in the book, as do also his sanitation and hygienic work in the Philippine Islands. On his retirement as Surgeon-General, Dr. Sternberg interested himself particularly in housing and antituberculosis work in Washington.

The American Medical Association has done a service to American medicine in publishing this biography. It has placed on permanent record the achievements of an American physician who was a practical leader, a pioneer among American army surgeons in the study of bacteriology, a clear thinker and an admirable character. As the great historian Sudhoff says: "The intuition of the true investigator and pathfinder of today and tomorrow must find its own way to new guiding principles from the work of yesterday, before yesterday, and the distant past."—The Journal of the American Medical Association, Sept. 4, 1920, Vol. 75, p. 694.

**Diseases of Children.** Presented in two hundred case histories of actual patients selected to illustrate the diagnosis, prognosis and treatment of the diseases of infancy and childhood, with an introductory section on the Normal Development and Physical Examination of Infants and Children. By John Lovett Morse, A. M.

M. D., etc., Boston. Third edition, octavo, illustrated. Published by W. M. Leonard, Boston, 1920. Cloth, \$7.50.

The first edition of this work was published in 1911; the second in 1913. That a new edition is called for, after the first and second were reprinted a number of times, is evidence of the popularity of the work. "There is a vitality in this work which is refreshing." I am convinced that it is founded on real merit. "This volume is now three books in one, viz: (a) A book on the Normal Child. (b) A book on Infant Feeding. (c) A book on Diseases of Children." The authoritative character of the author's conclusions and the excellent presentations of cases make the volume a valuable acquisition to any medical library. The book is full of interesting cases, such as we see in our own practice, and should be of great interest alike to the student and the practitioner of medicine. "In this edition the book has been thoroughly revised, and such methods of diagnosis and treatment as have proved themselves worthy of adoption in the interim since the last edition, suggested or advised. The section on the diagnosis of the gastro-enteric tract has been rewritten and a number of new cases substituted for old in the other sections." "The general plan of the book remains the same." The illustrations are photographs and are, therefore, true to nature. The introductory section takes up Normal Development and Physical Examination of the child; a very fascinating chapter, and one which shows a carefulness in observation and in examination not possessed by many of us. This is followed by a series of cases illustrating practically all of the diseases to which the new-born are subject. Then comes a chapter on Diseases of the Gastro-Enteric tract; a very interesting and instructive list of cases, in which the diagnosis and treatment are given. This is followed by a section upon Home Modification of Infant Foods, and the determination of their composition and caloric value—a valuable section. Then follow in succession sections dealing with Diseases of Nutrition; Specific Infectious Diseases; Diseases of the Nose, Throat, Ears and Larynx; Diseases of the Bronchi, Lungs and Pleurae; Diseases of Heart and Pericardium; Diseases of the Liver; Diseases of the Kidney and Bladder; Diseases of the Blood; Diseases of the Nervous System; and, in closing, a very interesting and instructive series of cases under the title "Unclassified Diseases". I believe that every medical man in general practice will want to read this interesting book. J. T. B.

**What Everyone Should Know About Cancer.** A Thirty Page Handbook for the Lay Reader. Published by the American Society for the Control of Cancer.

This book is intended for an audience quite different from that reached by the handbook previously published by the Society, one which was planned chiefly for physicians. This is addressed to everyone, and while the physician will find much of interest scattered throughout its pages, it has been prepared mainly for those who have no technical knowledge and who, therefore, wish to learn what they can, expressed in the simplest language. It is a well recognized fact that the successful treatment of cancer depends upon its early recognition, a matter upon which the American Society for the Control of Cancer has insisted in all its publications. Such early diagnosis, however, can be made only if the person in whom the cancer has begun goes to a physician. The success of the treatment after that point depends

upon the doctor himself, but up to the time of entering the doctor's office, it depends upon the patient. The extraordinary importance of cancer as a cause of death, (one person in ten after the age of forty in the United States dying of cancer), has only recently been recognized, and is not very widely known even among well informed people. Most persons delay going to a physician until the disease has extended to such a degree that the chance of successful removal is very slight, simply because they have never been told what a cancer looks like or what sensations it causes. They think that a cancer must hurt,—when as a matter of fact, pain is one of the late symptoms of the disease,—and also that the disease is hereditary and contagious. This handbook tells exactly what is known on these subjects: that cancer is not contagious nor does heredity play any known part in the occurrence of cancer in the human race. Very excellent advice is given in it concerning the conditions which may lead to cancer, such as sores about the mouth, rough teeth, and ulcers of the stomach; and the symptoms are set forth. The modern methods of treatment are summarized so that anyone can judge of their relative value. All forms of cancer are carefully discussed, the sections on the different types having been written by specialists, and the whole revised by a committee composed of some of the leading students of the subject, including Dr. Francis Carter Wood, Director of Cancer Research; George Crocker Special Research Fund, Columbia University; Dr. James Ewing, Professor of Pathology at Cornell University and Director of Cancer Research at the Memorial Hospital, New York; Dr. Harvey R. Gaylord, Director of the State Institute for the Study of Malignant Disease, Buffalo, N. Y.; Dr. E. E. Tyzzer, Director of the Cancer Commission of Harvard University; and Dr. Frederick L. Hoffman, Statistician and third Vice President of the Prudential Life Insurance Company. These names are a guarantee that all the statements made have been carefully sifted according to the latest knowledge, so that the data in the booklet may be accepted without argument by those interested in the movement for the control of this disease.\*

**Principles and Practice of Physical Diagnosis.** By John C. DaCosta, Jr., M. D., Ex-Associate Professor of Medicine, Jefferson Medical College, Philadelphia. Fourth Edition. Thoroughly revised. Octavo of 602 pages with 225 original illustrations. Philadelphia and London: W. B. Saunders Company, 1919. Cloth \$4.75 net.

The fourth edition of this book has been thoroughly revised without materially increasing the size of the book. With the author's usual clarity newer methods of physical examination have been described and the latest information available put at the disposal of the reader. Diseases of the heart and lungs have received special

\*Editor's Note—The following statement is made by the Society:

"Health departments, medical organizations or others desiring to secure this handbook for general distribution in quantity may order it through the American Society for the Control of Cancer, 25 West 45 Street, New York City, at the following rates:

5,000 copies .....	\$175.00
1,000 copies .....	50.00
500 copies .....	25.00
100 copies .....	5.00

Orders for fifty copies or less for personal distribution will be furnished free of cost by the Society."



consideration, such things as Gas Edema, Aviator's Heart and Sinoauricular block have been duly considered.

The book is well illustrated, and is concise without being too brief.

T. R. L.

**Medical Clinics of North America, Volume IV** Number 1 (New York Number, July 1920). By New York Internists. Octavo of 370 pages with 44 illustrations. Philadelphia and London: 1920. Issued serially, one volume every other month. Paper \$12.00. Cloth \$16.00 net. Six numbers per clinic year.

In the New York Number there are nineteen contributions from the leading hospitals and clinics presented by clinicians of the highest rank. Dr. Nellis B. Foster opens this number with an exhaustive and up-to-date clinic on nephritis. Dr. Harlow Brooks dwells on the complications and sequelae of influenza and their management, after analyzing nearly nine thousand hospital cases. In a study in endocrines in which puberty and climacterium are considered by Dr. S. W. Bandler, he impresses one as being over confident in his views with insufficient established data on that subject. A praiseworthy contribution on the diagnosis of encapsulated pleural effusion with numerous excellent roentgenograms is presented by Dr. H. Wessler. The treatment of advanced heart failure is discussed by Dr. Cary Eggleston; here the rapid method of digitalization is recommended. Dr. Albert A. Epstein discusses the clinical types of chronic parenchymatous nephritis, their treatment and results in a most instructive manner. Some Phases of the Circulatory Disturbances of Pregnancy, with an illustrative case, is presented by Dr. W. W. Herrick. This is followed by a discussion on the prevention and serum treatment of lobar pneumonia. Four valuable contributions by Drs. Mosenthal, Kraus, Marks and Boas from the Department of Metabolism, Vanderbilt clinic, are praiseworthy. Dr. Louis Bauman dwells on the clinical significance of urobilin, and Dr. Burrill B. Crohn on the early abdominal symptoms of myocardial insufficiency. Diet in eczema is described by Dr. S. J. Nilson. A discussion of auricular fibrillation by Dr. S. Neuhof follows. Dr. Walter F. Maclin dwells on the prevalence of heterophoria and its influence upon general health, and Dr. Max Kahn discusses the clinical significance of acidosis. The closing clinic by Dr. M. B. Rosenbluth deals with glandular fever.

J. L. M.

#### **The Treatment of Wounds of Lung and Pleura.**

Based on a study of the Mechanics and Physiology of the Thorax. Artificial Pneumothorax—Thoracentesis—Treatment of Empyema; by Professor Eugenio Morelli, Assistant in the Medical Clinic of the Royal University of Pavia, Maggiore Medico, Field Hospital No. 79. Translated from the Italian by Lincoln Davis, formerly Lieutenant-Colonel, M. C., U. S. Army, and Frederick C. Irving, formerly Major, M. C., U. S. Army. Boston, W. M. Leonard, Publisher, 1920.

This volume represents an authoritative expression of the work done in surgery of the chest during the Italian campaign in the late war. Ospedale No. 79, attached to the 11th Corps of the Italian Army, was devoted exclusively to the treatment of wounds of the lung and pleura, under the direction of Major Morelli. The translators of the book enjoyed the privilege of being near neighbors and close observers of Morelli's novel methods. Believing that his work is but little known or appreciated out of Italy, they have translated his book into English.

To the profession in Colorado the book is of

more than average interest, since it deals with the question of artificial pneumothorax. Morelli has utilized this therapeutic agent in the treatment of war wounds of the lung with most astonishing results.

This book is written in a clear style and the chapter dealing with the general principles of treatment elucidates many phases of the rational use of pneumothorax in obtaining immobilization and compression of the lung. While Morelli applied this method in war wounds of the lung many good points will be gained by the reader for applying the same method in civil practice. The case reports as well as the discussion will be found highly illuminating.

O. M. S.

**The Surgical Clinics of Chicago.** Volume IV, No. 4. (August, 1920). Octavo of 214 pages, 80 illustrations. Philadelphia and London; W. B. Saunders Company, 1920. Published bi-monthly. Price, per year, paper, \$12.00; cloth, \$16.00 net.

A busy surgeon may always find some points of value in the collections of cases presented in the Surgical Clinics of Chicago. The August, 1920, number is no exception to the rule. Here we find, besides a pathological lecture and a historical paper, an offering of thirty-one surgical cases in which the operative treatment is particularly emphasized. A wide range of subjects is covered, showing the work of fifteen surgeons.

Naturally, in such an extensive variety, many cases offer no contributions of especial value and many are poorly presented, but a perusal of the table of contents will show the average reader at least a few subjects of which he would like to know the Chicago version.

Particularly to be recommended is the clinic of A. D. Bevan. His cases are well selected, his demonstrations are clear and concise, and he offers some valuable points in operative methods. His mode of closure of ventral hernia is well worth noting.

Kanavel has an interesting clinic on tumors of the face. He presents three not uncommon congenital conditions and discusses the field in detail.

Two cases of muscle injury presented by Montgomery demonstrate conditions often long overlooked.

Anyone interested more in brain surgery, orthopedics, urology or nose and throat work may find clinics on these subjects as well as on the more general conditions.

G. B. P., Jr.

#### **Bandages and Cotton Sold by War Department.**

The War Department authorizes publication of the following from the Office of the Director of Sales:

The Surplus Property Branch, Office of the Quartermaster General of the Army, has sold to Thomson & Kelly Co., of Boston, the remaining surplus of bandages and absorbent cotton purchased for the use of the Army during the war. The sale netted the Government more than \$1,000,000. The bandages alone represent a quantity sufficient to supply the hospitals and surgeons of the United States with all their needs for at least eighteen months. The Boston firm was the highest of a number of bidders for these items. Included in the sale were a million dozen roller and between two and two and one-half million compressed bandages, and approximately 2,250,000 1-ounce packages of absorbent cotton.

**THE COLORADO STATE MEDICAL SOCIETY.**

(Incorporated November 1, 1888.)

The next meeting will be held in Pueblo.

**OFFICERS, 1920-1921.**

President, F. R. Spencer, Boulder.

President-elect, H. A. Smith, Delta.

Vice Presidents—1st, W. V. Mullin, Colorado Springs; 2nd, F. W. E. Henkel, Silverton; 3rd, R. S. Johnston, La Junta; 4th, Carbon Gillaspie, Boulder.

Secretary, F. B. Stephenson, Denver.

Treasurer, W. A. Sedwick, Denver.

Delegates to the American Medical Association: Senior, Gerald B. Webb, Colorado Springs.

Alternate, H. G. Wetherill, Denver.

Junior, J. N. Hall, Denver.

Alternate, C. F. Hegner, Denver.

Councilors:

District 1. M. R. Fox, Sterling.

District 2. F. W. Kenney, Denver.

District 3. M. J. Keeney, Pueblo.

District 4. W. W. Crook, Glenwood Springs.

District 5. L. L. Harriman, Alamosa.

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each month; secretary, Minnie C. T. Love, Denver.

**El Paso County**—Second Wednesday of each month; secretary, C. E. Richmond, Colorado Springs.**Fremont County**—Fourth Monday of January, March, May, July, September and November; secretary, Otis Orendorff, Cañon City.**Garfield County**—Time of meeting (not reported); secretary, E. J. Horan.**Huerfano County**—Time of meeting (not reported); secretary, Anbert Durnell.**Kit Carson County**—Time of meeting (not reported); secretary, Wm. L. McBride.**Lake County**—First and third Thursday of each month; secretary, E. B. Lynch, Leadville.**Larimer County**—First Wednesday of each month; secretary, R. L. Gleason, Wellington.**Las Animas County**—First Friday of each month; secretary, E. S. Adams, Trinidad.**Mesa County**—Third Thursday of each month; secretary, A. G. Taylor, Grand Junction.**Montrose County**—First Thursday of each month; secretary, D. C. Groves.**Morgan County**—Time of meeting (not reported); secretary, E. R. Clark, Fort Morgan.**Northeast Colorado**—Second Thursday in each month; secretary, J. H. Bush, Sterling.**Northwestern Colorado**—Time of meeting (not reported); secretary, E. L. Morrow, Oak Creek.**Otero County**—Second Tuesday of each month; secretary, G. E. Calonga, La Junta.**Prowers County**—First Tuesday of each quarter; secretary, Milton Friend, Lamar.**Pueblo County**—First and third Tuesday of each month; secretary, Philip Work.**San Juan Medical**—Time of meeting (not reported); secretary, F. W. E. Henkel, Silverton.**San Luis Valley**—Time of meeting (not reported); secretary, C. A. Davlin, Alamosa.**Teller County**—(Not reported).**Weld County**—First Monday of each month; secretary, W. F. Spaulding, Greeley.**NEW AND NONOFFICIAL REMEDIES.**

During September the following articles were accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

United Synthetic Chemical Corporation: 20 percent Aromatized Suspension made from Benzyl Benzoate (Van Dyk and Co.).

The Heyden Chemical Works: Proganol.

Change of Agencies:

Arheol and Riodine. The Council has directed that the description of Arheol (New and Nonofficial Remedies, 1920, p. 251) and Riodine (Jour. A. M. A., Aug. 14, 1920, p. 477) be revised to state that these products are manufactured by P. Astier Laboratories, Paris and New York, and are distributed by Geo. J. Wallau, Inc., New York.

Benzyl Alcohol (Van Dyk and Co.): Benzyl Benzoate (Van Dyk and Co.): The Council has directed that the description of Benzyl Alcohol (Van Dyk and Co., (New and Nonofficial Remedies, 1920, p. 28), and Benzyl Benzoate (Van Dyk and Co., (New and Nonofficial Remedies, 1920, p. 50), be revised to indicate that the United Synthetic Chemical Corporation is the distributor of these products.



# Colorado Medicine

OWNED AND PUBLISHED BY COLORADO STATE MEDICAL SOCIETY

## PUBLICATION COMMITTEE.

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## *Editorial Comment*

### **A REJUVENATED MEDICAL SCHOOL AND A STATE HOSPITAL.**

In spite of the wide field open to a medical school in Colorado, the need for it, and the great possibilities of developing a strong medical center here, as was pointed out in a recent number of *Colorado Medicine*, the present situation of the school is most unsatisfactory. This has been duly recognized by the Regents, but they have been confronted by the fact that the revenues of the University are inadequate to properly finance a good school without seriously crippling all or even abolishing some of the other departments of instruction.

Important aid is now at hand. The Regents last spring adopted the following program: Purchase of a site in Denver sufficiently large to accommodate a modern Medical School, a State General Hospital and the Psychopathic Hospital, and to provide room for future growth. They plan the erection of a laboratory building or buildings, a State Hospital of one hundred and fifty beds, a Nurses' Home and a central heating plant, the whole to cost, exclusive of the Psychopathic Hospital, approximately \$1,500,000 for plant and equipment. It is estimated that the budget of such a Medical School should be \$100,000 a year and that the State Hospital will require \$150,000 a year, a total maintenance budget of \$250,000 annually. This project was presented to the General Education Board of the Rockefeller Foundation with a request for help, and word has recently come of their favorable action on it.

Toward such a program the Foundation

has offered \$700,000 for Medical School construction and \$50,000 a year toward medical school maintenance for a period of three years after the plant is ready for operation, if the state will provide the remainder. The Regents believe that if the state will appropriate \$600,000 to build the State Hospital they can secure the remaining \$200,000 of the \$800,000 needed to complete the amount needed for construction, by private subscription. They believe further that with the Rockefeller subvention of \$50,000 the University can finance the increased budget of the Medical School out of its revenues, leaving as the net increased cost of maintenance to be met by the state the amount needed for the Hospital, or \$150,000. Against this latter figure should be set the probable income from patients who, though financially unable to pay a physician's fee, and therefore proper State Hospital patients, might yet be expected to pay part or all of their actual hospital expense for board and room. This income may be conservatively estimated at \$15,000 annually, leaving a probable maximum net hospital budget of \$135,000. In other words, the state has the opportunity to acquire a \$1,500,000 plant by an investment of only 54 cents on the dollar, of which only 40 cents on the dollar is asked of the Legislature, and to finance it through its developmental years at a cost of only 80% of its total maintenance. Only 54% of this is increase above what is now being paid for the less efficient performance of less than half the service.

The \$600,000 needed from the state for construction will cost less than 20 cents on each \$1,000 of taxable property during this biennium only. The maximum maintenance of \$135,000 will cost less than 9 cents on each \$1,000 of taxable property. This main-

tenance may be borne by the state directly as in Nebraska, or pro rated back to the counties proportional to the number of patients sent as in Iowa. Since many of these prospective patients of the Hospital are now charges upon their respective counties which would thereby be relieved, the actual increase in cost to the state would be far below this figure.

Colorado then has the opportunity of acquiring a high grade medical educational plant with all the benefits which will accrue from it and at the same time of erecting a State Hospital on most advantageous financial terms. Such a Hospital would have as its aim the relief and cure of the large number of indigent and semi-indigent citizens of the state whose illness or disability makes them potential or actual charges upon the public, but who, restored to health and earning capacity, would become assets instead of liabilities to the state. Such restoration frequently involves the use of complicated diagnostic procedures or of highly skillful special treatment, much of which must be carried out under hospital conditions and involves the use of expensive apparatus. It is beyond the resources of many counties and would be manifestly poor economy for each individual county to provide the expensive plant necessary. A central plant caring for patients from the entire state meets this need admirably. Such a hospital should admit only patients unable to pay a physician's fee, making no charge for professional service, and should be secured against abuse by requiring a certificate of such inability from the patient's physician. It should admit only patients for whom there is reasonable prospect of relief, improvement or cure.

This plan has been thoroughly tried in Michigan, Iowa, Minnesota and Nebraska and is being considered or has been adopted in many other states, notably Wisconsin. In each of these states it is regarded as highly successful both as an economy and as a humanitarian measure and has the enthusiastic support of the taxpayers.

The wisdom of attempting so ambitious a program in the face of present demands for retrenchment will be questioned in some quarters. The Regents have carefully con-

sidered this aspect and feel that conditions are such that it is imperative that the state make its decision now. In the first place, the Medical School cannot much longer retain its present Class A standing unless the above program is carried out. The situation is critical and the Regents are convinced that the School should be either discontinued or strengthened and developed under the plan proposed. Colorado cannot afford to support a second or third class school. Second, the fact that the people have voted \$350,000 for the building of the Psychopathic Hospital to be conducted by the Regents as a part of the Medical School and that the Rockefeller Foundation offers such generous help toward carrying out the full program now are convincing reasons against delay. And finally, the number of other medical schools hoping for similar aid is so great that, if the offer is disregarded now, it is unlikely to come to us again.

Denver has been chosen as the site, in spite of the great reluctance of the Regents to place the School away from the University campus, because central location and easy railroad accessibility for hospital patients, presence of a large body of highly skilled physicians who conduct clinical teaching without pay, a large center of population from which ambulatory patients may be drawn, and accessibility to other hospitals, particularly special hospitals, for supplementary clinical instruction—all these are essential to successful development and can be found most easily and surely at Denver. Moreover, the Psychopathic Hospital has been located at Denver as the proper central point by the act authorizing it.

This plan is new to state officials, to the Legislature, to county officials and to citizens generally. It should carry easily of its own merit if its advantages to the state and to its individual citizens are understood. In the face of present demands for retrenchment in state expenditures, however, it is conceivable that the members of the coming Legislature, though convinced of these merits, might be unwilling to take favorable action unless clear that they have the approval of the taxpayers.

Two things are accordingly vitally neces-



sary if you wish to see this opportunity grasped:

1. See that you and all those to whom you have access understand its great possibilities.

2. Make your support known in order that the Legislature may count on your backing.

The time is very short and prompt and energetic action essential. C. N. M.

### **PROPOSED CHANGES IN THE COLORADO MEDICAL PRACTICE ACT.**

It is proposed that a bill be drawn carrying essentially the same provisions as our present law, in order that much of the useless verbiage may be eliminated. Our present law was poorly written in the first place in 1881, and amendments and additions have been made from time to time until even good lawyers find it difficult to interpret. We therefore deem it advisable that it should be rewritten with the following changes and additions:

(1) To change the title from "An Act Relating to the Practice of Medicine in the State of Colorado", to "An Act for the Protection of Public Health, by Regulating the Practice of the Healing Art in the State of Colorado."

This change of title is asked for because the average layman finds considerable difficulty in understanding that the practice of medicine is the practice of the healing art. We want our title to be so definite that it may not be misunderstood by anyone, lawyer or layman—judge or jury. There is absolutely no reason why there should be a law requiring anyone to take out a license to practice the healing art, except that of protecting the public. No school of medicine should be protected. Each should stand on its own merits, but no one should be permitted to hang out his shingle as a doctor who has not been educated in the sciences necessary to an intelligent understanding of the body. The fundamental idea from the inception of medical licensure in Colorado in 1881 has been that no one should be permitted to treat the sick who cannot show knowledge of the diseases he would treat. This is to the end that communicable diseases

might be lessened and not spread by one who holds himself out as a physician or practitioner of the healing art. Never in the history of Colorado, in examination for licensure, has there been permitted a question on how to treat disease. All questions have borne on how to recognize the disease one would treat. This has been done in order that no prejudice on the part of the examiner might interfere with the treatment to be given by those who hold different views on methods of treating. The identity of the applicant has been withheld from the examiner for the same purpose. It must be evident that under these circumstances it would be perfectly foolish to have more than one Board of Examiners to ascertain the qualifications of the applicant, whatever the method by which he proposes to treat the sick. For the same reason we deem it essential that there should be no question of doubt as to what is intended to be covered by the bill. With this change in title there could be no question.

(2) Increase in applicant's fees from \$25.00 to \$50.00.

The change from \$25.00 to \$50.00, to be paid by the applicant, is asked because the present income from fees is not sufficient to properly administer the law. We find it sufficient to license the applicants, but not sufficient to gather evidence for the prosecution of those who are practicing in the state without license. You will note in this connection that the cost is paid by the applicant and not by the state, while the state benefits to the extent of increased service which the Board may be able to render.

(3) Additional educational requirements for those who may apply for license.

In Section 8 of the present law you will note that, "no person who possesses a good moral character and has made application for a license upon the form provided by the Board and has paid the fees therein specified shall be denied the right to take the examination."

This we believe to be entirely too broad and should be amended. I know of no other state in the Union which will permit anyone who is not a graduate of some school of healing to take an examination. Inasmuch as we are limited to a written examination in

order that the identity of the applicant may not become known to the examiner (and it is well known that any bright individual, by a good course of cramming, can be prepared for a written examination without practical knowledge of the subject), we deem it wise that some provision should be made in the law for a preliminary education, which should be a high school education or its equivalent, as well as graduation from a school of the healing art which requires personal attendance with a minimum course of at least two years of nine months each, in separate calendar years, and of at least two thousand sixty-minute hours of instruction work in a school teaching the healing art, as a condition for licensure. This we recognize as not a very high requirement, but one which may be justly made by the state without the charge of unfairness to any school of healing worthy of the name.

(4) Increased penalties for violation of the Act, making second and subsequent offenses a felony.

The penalty for violation of the Act should be increased, and especially should the second and third offenses be made a felony because many of the worst offenders who obtain the largest amounts of money under false pretenses or misrepresentation of fact care little for any fines which may be assessed by the courts. In many instances the fine does not amount to as much as they collect in a day's work, and necessarily there will be many days between the times of prosecution.

(5) Provision for an examination of chiropractors.

Section 32 of our present law was written to provide for those chiropractors who were in the state at the time the act was passed in 1916. They have been licensed and there is therefore no reason why a large portion of this Section should be re-enacted. I suggest that this Section should provide merely for the licensure of chiropractors who meet the condition of licensure to practice the healing art as provided for in the proposed amendment in Section 8, together with an examination of anatomy and physiology by the Board, supplemented by an examination on Chiropractic Diagnostics and Adjustment, made by a chiropractor who should be se-

lected by the Board from a list of licensed chiropractors furnished by the Colorado Chiropractic Association.

Physicians and others interested in this measure are requested to use their influence, both directly and indirectly, with their representatives.

Respectfully submitted,

DAVID A. STRICKLER, M.D.,

Chairman, Committee on Public Policy and Legislation, Colorado State Medical Society.

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### VACCINATION AGAIN ON THE DEFENSIVE.

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The recent agitation for the repeal of the compulsory vaccination law for school children in Denver, culminating in a suit to restrain the local board of education from prohibiting the attendance of a child whose parents are opposed to this measure, has revived a problem which should readily have been settled more than a century ago.

The progress of scientific medicine has always provoked bitter antagonism among certain classes of people whose mental limitations render them incapable of sane judgment. In regions formerly afflicted with pernicious malaria and yellow fever, but happily freed through the epochal discovery of the rôle played by the mosquito, sanitarians were discredited and their labors belittled and condemned in every community by groups of misguided people. When their censure assumed a more sordid phase, and led fanatical traducers to tear the covering from screened water containers and to nullify in various other ways measures of eradication, a few quiet days in the local jail usually sufficed to calm their troubled spirits. Under the specious plea of personal liberty, followers of various cults and members of so-called leagues of medical freedom seek to absolve themselves from the operation of fundamental sanitary ordinances "whose influence it would be impossible to overestimate in furthering civilization and promoting the physical and moral advancement of the human race." (Councilman). With easy tolerance the public has indulged these views until, in a recent communication from the district attorney of Los Angeles to the pres-



ident of the local medical society, this officer volunteered the assertion that the number of helpless infants who have been robbed of life and allowed to die of contagious disease since this peculiarly dangerous and inhuman fanaticism was promulgated, has undoubtedly reached appalling proportions in the United States. In this connection, a decision of the United States Supreme Court sustaining the vaccination law of Massachusetts is of more than common interest. With reference to the rights which certain people believe are infringed by these measures, we read "the liberty secured by the Constitution does not impart an absolute right in each person to be, at all times and in all circumstances, absolutely free from restraint. Real liberty for all could not exist under the operation of a principle which recognizes the right to use his own, whether in respect to his person or his property, regardless of the injury that may be done to others".

With regard to the efficacy of vaccination, in addition to the overwhelming compilation of statistics and personal observations procurable in any medical library, the following unpublished figures supplied the Public Health Service by the surgeons general of the army and the navy of the United States, bearing on the protection of our forces in the World war, are conclusive. General Ireland reports that in the American forces, among approximately 4,000,000 men, there were 791 cases of smallpox, mostly among those in whom vaccination had failed to take. In the American expeditionary forces, numbering over 2,000,000 men, all well vaccinated, there were only 24 cases. During the Franco-Prussian war, when vaccination was not rigidly enforced by the French, there were 57,000 cases of smallpox and 1,963 deaths recorded among their forces. In the French army of 6,000,000 men during the last war, when vaccination was compulsory, there were 12 cases and 1 death. In line with these remarkable records come the following statistics from the navy: In 1915, among 68,000 sailors and marines, there were 5 cases of smallpox and 1 death; in 1916, with a complement of 69,000 men, 4 cases and 1 death; in 1917, of 245,580 men, 10 cases and 1 death; in 1918, 503,792 men, 51 cases and 3 deaths; in 1919, 298,774 men, 30

cases and 2 deaths. It is well known that the navy personnel is exposed to virulent smallpox in every port, and the astonishing protection afforded them by the simple operation of vaccination must bring conviction to every fair minded individual. From another angle, further light is shed on the control of smallpox in a communication from Asst. Surg. Gen. J. C. Perry from which is quoted this statement: "It is significant that Utah, the only state with a rigid **anti-vaccination** law in force, has the highest case rate per hundred thousand among 35 states reporting for the years 1913 to 1917."

Typhoid vaccination affords equally striking data. In the Spanish-American war there was 1 case of typhoid fever for every 7 men in the United States army, while during the World war the proportion was approximately 1 case in every 3,756 men (Ireland).

So, whatever the decision may be in the case now under consideration before a Denver judge, the profession and the public alike are justified in the conclusion that in vaccination we have the safest, simplest and most potent specific prophylactic in the field of preventive medicine and that compulsory health laws of this character must continue to be enforced so long as the deductions of large experience and ripe judgment in purely medical problems are questioned or denied.

J. W. A.

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### TAKE UP THE LOST MOTION.

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#### A Plea for Co-ordination in Public Health Work.

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The exaltation of spirits and self-sacrificing idealism inspired by the war instigated the creation of agencies for the conservation of human life and stimulated the energy of existing institutions for the improvement of public health and sanitation. With the cessation of the struggle and consequent wave of enthusiasm there has been a distinct diminution in the sympathy of the public to these altruistic manifestations.

The cost involved is affecting the economic interests of the taxpayer and criticisms are rightly or wrongly being raised of wasteful extravagance, over-manning of

the administrative personnel, overlapping and duplication of activity by the different agencies and a general lack of co-ordination among the various forces devoted to public health.

Skepticism and hostility are in the air. Cynical remarks and irresponsible gossip passed from mouth to mouth are apt to undermine a movement devoted to the public good. It would be a great pity if the magnificent forces set in motion for the succor of the sick and the maintenance of the health of the people were to be throttled by the continuance of minor administrative defects that could be easily corrected.

Of the various factors composing our body politic, the medical profession is the one most vitally interested in safeguarding the public health. On the organized medical fraternity of this state naturally devolves the duty of making a careful scientific survey of the situation and proposing the proper remedy for any existing maladjustments. Colorado Medicine as the mouth-piece of the State Medical Society therefore invites the various agencies for the promotion of public health to discuss in its columns their plans and programs with a view to eliminating duplication of effort and uniting their forces into concerted action.

Considerable criticism has been heard against the multiplicity of agencies for apparently similar purposes. There are no well defined lines of demarkation between their respective functions. Thus to enumerate:

1. The U. S. Public Health Service.
2. Federal Board for Vocational Education.
3. American Red Cross.
4. Colorado State Board of Health.
5. Colorado Tuberculosis Association.
6. Denver Tuberculosis Society.
7. Municipal and County Health Departments.

The question in the mind of the average physician is, where does one begin and the other end? What are their respective limitations?

We would like to hear from each one of the agencies above mentioned an authoritative expression defining its sphere of activity and giving such data as will clarify the

present vague haziness in the public mind.

We hope that by a free and full discussion the way will be opened for a cordial co-operation and better co-ordination among these forces, with the elimination of waste and useless overhead expense. Not only the profession but the public at large will be aroused to a more hearty support of the movement for the saving of human lives.

P. H.

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### NEW HEALTH WORK.\*

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The law charges a health officer with the duty of protecting the public against communicable diseases by means of the enforcement of local and state health laws, rules and regulations in the area over which he has jurisdiction. A former interpretation of this duty was that it meant chiefly the maintenance of the isolation, forcible if need be, of well defined cases. It is now interpreted to include the diagnosis of suspicious cases, through discovery and control of contacts and carriers, and the giving of expert advice regarding the treatment of those affected. Diagnosis and treatment are often considered to be the exclusive right and prerogative of the family physician, but it is the duty of the health officer to assist the family physician in the diagnosis and treatment of communicable diseases. The jealousies and disputes which so frequently arise between the health officer and family physician may commonly be avoided if the health officer will exert himself to acquire such knowledge and skill as will entitle him to recognition as a specialist in communicable diseases and in other lines of public health work.

Until ten years ago the conscientious health officer isolated each case of communicable disease as it was reported to him, and carefully fumigated the premises when the case was terminated. Having done this he was entitled, according to then existing beliefs, to entertain a lively satisfaction with himself and to expect the heartfelt

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\*This is the first of a series of short accounts of the activities and problems of the Colorado State Board of Health which have been promised the Editor for publication from time to time.



gratitude of the community. Unfortunately, some health officers have not advanced beyond this point.

A really efficient health officer should learn of the existence of cases of communicable disease in his area in three ways; first, by the reports of physicians; secondly, by the reports of laymen, including teachers, public health nurses, parents and others in authority; thirdly, by means of investigations made on his own initiative, assisted, if need be, by the State Department of Health. These investigations should be conducted systematically in the effort to discover unsuspected cases of communicable disease, especially during epidemics. The control of such epidemics rests largely in the early recognition and isolation of mild cases as well as of contacts who have not yet developed the disease.

Following are some of the most important changes in the Laws and Regulations of the State Board of Health of Colorado as recently passed:

The number of reportable cases is increased by 2, making 47. Botulism and encephalitis lethargica are the two which have been added.

Under the subject of Anthrax are the directions for the sterilization of shaving brushes as follows:

"Any shaving brushes found on the market which do not bear the name or the trademark of the manufacturer should be regarded with suspicion, and should be returned to the source from which they were secured, or should be disinfected."

For the sterilization of brushes the following procedure is believed to be effective:

"The brush should be soaked for four hours in a ten percent solution of formalin (by formalin is meant a forty percent solution of formaldehyde). The solution should be kept at a temperature of 110° F. and the brush so agitated as to bring the solution into contact with all hair or bristles."

Under Smallpox the quarantine period of exposed persons, who refuse vaccination, has been made 21 days instead of 14 as heretofore.

The following Technique of Vaccination is recommended:

"Vaccination should be performed on the

outer surface of the upper arm opposite the insertion of the deltoid muscle. The outer surface of the thigh, six inches above the knee, may be used advantageously for girls and so avoid a disfiguring scar. A small drop of vaccine is placed on the spot that has been cleansed and dried, and then with the new sterile needle, scalpel or platinum scarifier a scarification is made, not larger than the end of a match, or a single scratch not more than a quarter of an inch long, the scarification or scratch being made through the drop of virus. (Cross hatching or more than one scratch should not be employed under any circumstances). The vaccination should be allowed to dry thoroughly in the air. A dressing of clean sterile gauze or clean cheesecloth should be fastened to the undergarment to protect the vaccination. The patient must be warned not to scratch or disturb it. No shield of any variety should be used. The scab should not be removed."

A recent opinion of the attorney general is as follows:

That during the prevalence of an epidemic of smallpox, school children who are not protected by recent successful vaccination or previous attack of smallpox may be excluded from school during the prevalence of the epidemic.

Another valuable item is the Outline of Investigation for Typhoid by Local Health Officers, which is as follows:

1. Case No. Name. Address.
2. Age. Sex. Single, Married, Widowed. Nationality.
3. Date of first symptoms. Date of onset.
4. Widal reaction present? When? Date of previous attack of typhoid.
5. Residence when taken sick—from.... to....
6. Residence previous 2 months—from.... to....
7. Under treatment at
8. Character of residence, private house, boarding house, hotel, flat.
9. Kind of store or business connected with house or family.
10. Number of occupants of house. Names of previous typhoid patients.

11. Names of those employed and business. Where?
12. Names of those vaccinated against typhoid.
13. Occupation of patient.
14. New-comers in family within 2 months, any had typhoid? When?
15. Servants' names. Addresses.
16. Servants had typhoid? When? Contact with others having typhoid?
17. Disposal of sewage; sewer, privy, cesspool, number of feet from well.
18. How house screened, flies?
19. Sanitary condition of house and yard.
20. Disposal of manure?
21. Absent from city within 30 days? Where?
22. Names and addresses of persons visited.
23. Known cases where visiting. Source of water.
24. Steamers traveled on. When?
25. Bathing—river, creek, pond, lake, bathhouse? Where?
26. Source of drinking water.
27. Source of ice supply. Source of raw vegetables.
28. Where food taken within 30 days?
29. Milk used as beverage. Is milk pasteurized? Source of ice cream.
30. Name and address of milkman.
31. Raw oysters, lettuce, celery, strawberries?
32. Has patient been associated with persons having typhoid? When?
33. Are stools disinfected? How?
34. How are stools disposed of?

The new regulation concerning Swimming Pools is as follows:

If the bacterial count is greater than is permitted in drinking water, the pool contents must be disinfected by the use of chlorine. The water must remain sufficiently clear to permit a submerged person to be seen in any part of the pool. The water must be regularly or continuously changed, and when discharged should be disposed of as sewage. The lining of the pool must be white or nearly so. The stairs and stair supports should be of metal, stone or cement. The water from the floor surrounding the pool must not be drained back into the pool. The pool should be shallow at one end and

deep enough at the other end to make diving a safety. No common towels, combs, brushes or drinking cups shall be permitted, and signs cautioning against indiscriminate spitting should be conspicuously posted. Signs in large letters should be posted in dressing compartments directing all bathers, men and women, to take a preliminary cleansing shower in the nude with warm water and soap, which must be rinsed off before entering the pool.

In view of the various ambiguous and inaccurate uses to which the words isolation and quarantine are not infrequently put, it has seemed best to adopt arbitrarily the word "isolation" as describing the limitation put upon the movements of the known sick or "carrier" individual or animal, and the word "quarantine" the limitations put upon exposed or "contact" individuals or persons.

"Terminal and concurrent disinfection" take the place of "fumigation", which is not mentioned.

COLORADO STATE BOARD OF HEALTH.

J. W. M.

### NOTES ON STATE SECRETARIES' MEETING.

There seemed to be no one specific purpose of the meeting of the secretaries of the various State Societies held in Chicago November 11th and 12th. The general intent seemed to be the discussion of a number of problems and plans for more effective activities of the organizations. One thing that was very forcibly impressed upon the Colorado representative's mind was that the medical society of a western state, sparsely populated, has peculiar problems of existence which the thickly settled states of the East do not encounter. For instance, the matter of employing a full-time executive secretary, discussed at length and advocated by many, is one which it would seem at first Colorado could not consider. With a comparatively small membership scattered over a large area which is cut up by mountain ranges, an active organizer would meet with great expense if he tried to keep in personal touch with all parts of the state, even if the Society could afford to pay the salary of a



competent man. However, it was said that such a full-time executive could so increase the resources of a society of the size even of Colorado's as to not only more than pay his salary but also improve the organization considerably. This is not plain on its face, and if the desire for such action should be felt, the promoters of this plan in some state where it now exists may be called upon to show Colorado just how she can pay an organizer \$4,000 to \$5,000 a year and come out ahead.

Other subjects discussed at the meeting were post-graduate work, medical defense (liability insurance conducted by the society), collection agencies (conducted by the society), how to increase membership, and general methods of perfecting organization. The secretaries were also asked to express their opinion upon a certain project for community health center work which is to be proposed at the next meeting of the American Medical Association. A number of these subjects will be considered editorially at a future date, and if there is a desire to institute some one or more of the plans, which certain other societies are successfully conducting, proposals can be brought up at the next annual meeting of this society and acted upon. The plan of medical defense is one in particular which seems to have worked admirably where it has been adopted and has a secondary advantage of drawing membership. It will probably be discussed in detail following further investigation.

### THE FUNCTION OF YOUR JOURNAL.

Since the present editor has been conducting the publication of Colorado Medicine, he has taken occasion many times to consider just what the policy of the journal should be to enhance most the interests of the State Society and its individual members. Comprehensively speaking, the purpose of the organ of any Medical Society should be twofold; first, to advance scientific medicine, and second, to promote the general interests of the physician, i. e. it should reflect the objects of the society. In the first instance we believe the purposes of the journal have been fairly well served; such submitted scientific articles as the edi-

tor has considered worth while have been accepted and published, and clippings and abstracts, as well as certain editorial material, bearing on advances in medical science, have from time to time been printed. It is true that since the journal is partly a record of proceedings of the sessions of the Society, it has been customary and in fact is required that all papers read at the state meeting shall be published along through the following year. If some few of these may be considered not of particular scientific value they nevertheless do serve the purpose of laying the subject in hand open to discussion and the published discussions not infrequently contribute lively interest to the subject.

As to the general interests of the physician, those are handled in the journal simply as a reflection of the work of the various committees of the Society who have it as their duty to promote those interests. Witness the way in which the desires of the Committee on Public Policy and Legislation have been expressed and their arrangements promulgated through the editorial columns.

In spite of having technically carried out these policies, the editor feels that the journal is justly open to certain criticisms which have been expressed at his invitation. Generally speaking, the journal is felt to lack "pep". Since it is questionable whether much pep can be injected into science, the only place left to put pep, would be in that part of the journal which corresponds to a bulletin.

Over a year ago a department was started under the heading of Current Comment, and members were invited to submit short discussions of any topic which might be brewing in their brains and about ready to blow off. It turned out that only one or two seemed to have anything hurting him, but the department was kept up for awhile through the editor's personal solicitation of various discussions. So that did not bring what was wanted.

Invitation is now given to any member of the State Medical Society to suggest to the editor any means he may consider valuable for improving the journal and making it more interesting.

The editor himself would hate to see Col-

orado Medicine reduced to the plane of a joke book and believes it is fundamentally a serious publication, at the same time he feels that it should act as a means of communication between the constituent societies and between individuals who have something to say which is worth while. Please let us have your suggestions.

### POSTGRADUATE MEDICAL TEACHING DEMONSTRATED.

It is questionable whether medical extension work on a plan similar to that undertaken last year in Colorado can succeed in the face of the difficulties enumerated in a recent issue of Colorado Medicine (Editorial Comment, November, 1920), yet the failure of last year did serve to inaugurate a persistent movement for graduate teaching.

Two events have taken place since that editorial was written which give a much rosier hue to the dawn of postgraduate work in Colorado. One is the offer of the Rockefeller Foundation to assist with large funds in the establishment of a state hospital and improved medical school, provided that an approximately equal sum of money be raised by the state for the purpose. If the state's part of this program can be carried out by our Legislature this winter, it will be only a few years until a teaching hospital actually exists. The other event is the recent Clinical Congress of the Colorado branch of the American College of Surgeons, held in Denver, November 26 and 27.

The series of clinics demonstrated that Denver can furnish ample material for clinical teaching, that the state can furnish capable teachers and that physicians can and will arrange to attend such clinics\*.

Every doctor in Colorado should use his influence with the legislators from his district to secure the appropriation for a state hospital which will be asked for to partially meet the Rockefeller Foundation offer.

\*An account of the Clinical Congress, with the program as carried out, which appears in this issue, has for space considerations been included under Medical Societies.

## Original Articles

### ADDRESS TO THE GRADUATING NURSES OF MERCY HOSPITAL OF DENVER, COLORADO, OCTOBER 27TH, 1920.\*

H. G. WETHERILL, M.D., DENVER.

"From two points of view alone have we a wide and satisfactory view of life—one, as amid the glorious tints of the early morn ere the dew of youth has been brushed off, we stand at the foot of the hill, eager for the journey; the other, wider, perhaps less satisfactory, as we gaze from the summit at the lengthening shadows cast by the setting sun." (Osler—"After Twenty-five Years", 1899.)

You stand at the first portal with the bright light of expectancy, hope and ambition shining on your faces, and I, having long since passed beyond it, "gaze from the summit" at "the steep and broken pathway" over which you must go to attain the ends you long for.

My present purpose is to point out to you so far as may be possible in the short time at my disposal the better and safer pathways, to the best and highest objectives, and to set before you ideals and purposes that should bring you satisfaction and happiness in the life work you have chosen, and in the preparation for which you have devoted three of the best years of your life.

"The purpose of man's life is not happiness, but worthiness. Happiness may come as an accessory, we dare never make it an end". \* \* \* "To help one another is our wisdom, and our renown, and our sweet consolation". (Felix Adler—"Our consolations".)

True happiness in life can come but from one source, a useful occupation, and the more unselfish its purpose and the more serviceable and helpful it is to others who

\*In preparing this short address, I have derived much inspiration and stimulation from the various essays and addresses of Sir William Osler, and I have dared to quote freely from them. I wish, therefore, to acknowledge my indebtedness and, incidentally, to express for myself my share of the gratitude to him and the reverent affection for him which exists wherever he was known throughout the world.—H. G. W.



need your help, the greater happiness and satisfaction it brings.

Let me quote once again a saying of Sir Wilfred Grenfell, that most unselfish physician who devotes his life and energy to the poor fishermen on the coast of Labrador, for it expresses better than most of us could the purpose of effort and the object of education.

"Wisdom after all is not an end but a tool to work with. The turning of knowledge into service alone justifies the toil spent in acquiring it and gives it its true value in joyfulness".

I know of no better guiding motif for a nurse than that very phrase, for to few people is the opportunity given to turn knowledge into service, a service which relieves suffering and assuages grief, as is afforded the trained and educated nurse.

However, your patients and the physician to whom you are so necessary are not the only beneficiaries of the training you have received. The greatest gain of all has come to yourselves. Year after year have I watched nurse probationers enter our various hospitals with a sinking heart and a hopeless despair, for it has often seemed to me that by no freak of fate could the material sometimes accepted be beaten into shape to become an efficient and capable trained nurse; and yet, with occasional exceptions and only a few eliminated during the years of training, the finished product becomes a quiet, trim and capable person whose attitude toward her work and whose ideals and objectives in life are quite what they should be. She has learned, among other things, poise, balance, dignity and equanimity, and has become quite a different creature; and her training would have been well worth while for her own sake even if she had never had a patient or earned a dollar. Three years of cultivated unselfishness and of service to the suffering will have left an indelible imprint upon an impressionable personality in a pliable and plastic period of life such as can never be effaced, and this benefit at least you have acquired for all time.

Nursing as an art and with such scientific phases as it has acquired of recent years may be said to have been given "its modern

position" by one whose name is ever reverently spoken and gratefully remembered by all who know and appreciate what she did for humanity, and incidentally for physicians and for nurses and nursing.

Florence Nightingale was born in Florence, Italy, of gentle, English parents, in May, 1820, so this year (1920) marks the one hundredth anniversary of her birth.

It is eminently fitting and appropriate that upon an occasion such as this we pay tribute to the memory of one who did so much for my profession and for yours. She was at once the founder and the patron saint of the nursing profession, and the originator in the Crimean war of those principles and practices upon which nursing in the recent great World War was based. I am sure you will join me in the deep feeling of grateful appreciation I find mere words so inadequate to express in my veneration of and reverence for the memory of this remarkable woman.

Those of us who are in touch with the modern tendencies of the times and who realize the changed conditions existing and impending as a consequence of readjustments incident to the war, see, or think we see, a new aspect of the nursing problems of the world. There have been and are too few nurses to supply the demands of the hospitals and of the public, particularly in such strenuous times as have been incident to the aftermath of the war and the epidemics so prevalent during the past few years. This scarcity of nurses has, I am most sorry to say, developed a selfishness and sordidness in some nurses which has dimmed the lustre of the altruistic halo they have heretofore worn so proudly.

"Always seek your own interests, make a high and sacred calling a sordid business, regard your fellow creatures as so many tools of trade; and, if your heart's desire is for riches, they may be yours; but you will have bartered away the birthright of a noble heritage, traduced your well deserved title of the Friend of Man, and falsified the best traditions of an ancient and honorable guild". (Osler.)

Nurses of all kinds, but particularly good and well-trained nurses, are so scarce, they have become so expensive, and, in some in-

stances, they are so arrogant and avaricious, that the average man of moderate means who needs them most finds them, for him at least, quite unattainable. That this need for nurses for the man of moderate means must be met through a readjustment of training methods now employed for the making of nurses we all know. That the course must be shortened and the curriculum simplified and perhaps the requirements for admission to training advanced seems inevitable.

Something radical has got to be done to meet the new conditions, and the sooner we appreciate this and prepare for it the sooner shall we solve the problems before us.

We are far from the days and practices of Sairy Gamp and the rules for nurses of 1789, which provided among other things that "All nurses who disobey orders, get drunk, neglect their patients, quarrel or fight with other nurses, or quarrel with men, shall be immediately discharged."

However, readjustment is impending and is imperative. Let us hope that it may be worked with justice to all concerned and with the altruism and ideals of the best nursing traditions as guiding principles.

And now let me pronounce my valedictory, for this is the last occasion upon which I shall act officially as an active member of the staff of this hospital.

As I "gaze from the summit at the lengthening shadows cast by the setting sun", my mingled feelings of regret and gratification struggle for the mastery of my emotions. But the calmer and more rational exercise of judgment, based upon the experience of others and the sage advice of those for whose opinions I have great respect, gives me the assurance that the course I have decided upon is after all the wisest and best. He is a wise man who knows, appreciates and is governed by his limitations, be they due to his mental or physical make-up or merely, to him, evident restraining and retarding influences of increasing years. "Who can understand another man's motives?" "Does he always understand his own?"

Osler's much misunderstood and misquoted joking allusion to Anthony Trollope's plan, as set forth in his novel, "The Fixed Period", for men at sixty to be retired for

a year of contemplation before a peaceful departure by chloroform, was not wholly without the approval of his sober second thought, for he says in the preface of a late edition of *Aequanimitas*, "Let me add, however, that the discussion which followed my remarks has not changed, but has rather strengthened my belief that the real work of life is done before the fortieth year, and that after the sixtieth year it would be best for the world and best for themselves if men rested from their labors".

Pleading guilty as I do to the mild impeachment of three-score years and some, I have "learned the secret of Hermippus, that ancient Roman, who, feeling that the silver cord was loosening, cut himself clear from all companions of his own age and betook himself to the company of young men, mingling with their games and studies, and so lived to the age of 153. And there is truth in the story, since it is only those who live with the young who maintain a fresh outlook on the new problems of the world". (Osler, "A Fixed Period".)

The portals through which you view the glorious tints of the early morn as you stand at the foot of the hill eager for the journey are for me the portals of the past. I seek the easier pathways of peace down the western slope toward the setting sun, and the quiet contemplation in a secluded nook of the activities of a busy and I trust a not altogether unserviceable life.

I shall hope for happiness in reading much and in writing a little, and in the association with my friends, particularly the young ones, and in participating in their games and diversions. I shall furthermore want to devote such energy and ability as may remain to me to the task of making easier and straighter and more direct the pathways of others to whom such knowledge, experience and wisdom as I may possess can be made helpful.

I shall hope to spend most of my time in the great out-of-doors of the glorious golden west, which has done so much for me, and to which I am so devoted, and I trust that I may always be permitted to live among its broad-minded, generous people.

"These are the things I prize

And hold of dearest worth:



Light of the sapphire skies,  
 Peace of the silent hills,  
 Shelter of forests,  
 Comfort of the grass,  
 Music of birds,  
 The murmur of little rills,  
 Shadows of clouds that swiftly pass  
 And after the showers the smell of  
 flowers  
 And of the good brown earth  
 And, best of all, along the way,  
 Friendship and mirth".

—Henry Van Dyke.

### LETHARGIC ENCEPHALITIS.\*

GEORGE E. NEUHAUS, M.D., DENVER.

Lethargic encephalitis was observed in Europe in connection with the great pandemic of la grippe or Russian influenza of 1890 and 1892. No cases seem to have been observed in this country at that time, at least no mention is made of this disease by Archibald Church in his exhaustive article on the nervous features and sequences of la grippe. The first cases observed in this country were those reported by Major Tasker Howard at Camp Lee, Virginia, November, 1918.

Our knowledge regarding its epidemiology is still incomplete. The two European outbreaks which have been studied best—the one of 1890, and especially the recent one of 1917—originated in the territory comprising the old Austria, northern Italy, Switzerland and southern Bavaria. It has been surmised that the disease might be endemic in that portion of southeastern Europe, and make its periodical sallies from there. It would be necessary, in order to prove this, to show that isolated cases occurred in those countries in ordinary times, and that, through the depressing effects of war and famine, or in the presence of another disease of a debilitating character, as a severe epidemic of influenza, conditions arise which permit it to become epidemic.

As a very large proportion of the cases of encephalitis give a history of having had influenza, an incidence estimated by different

observers as being from fifty to one hundred percent, it is assumed that the two diseases stand in causal relationship to each other, either that there is symbiosis or that one is metabiotic to the other.

The disease is infectious, but it seems to be only mildly communicable. It is the rule to see only one case in a closely associated group, even when isolation has not been carefully carried out. Occasionally, two cases occur in one family, and in England an outbreak in a girls' home has been reported, where, out of twenty-one inmates, twelve cases, five of them fatal, occurred. It is possible that more accurate diagnosis might establish that abortive cases of encephalitis occur among closely associated people, in connection with the frank and recognized cases. This is a point which, in the interest of prevention, demands much more exhaustive study. Some observers advance the theory that encephalitis is related to poliomyelitis, in the way that typhoid is to paratyphoid.

The etiology of the disease is extremely obscure. With the exception of two or three successful attempts, it has been impossible to produce the disease in monkeys or other animals through inoculation of nerve tissue. This is the opposite from what is observed in connection with poliomyelitis, the lesions of which are easily produced in monkeys in this manner.

A diplo-streptococcus was isolated by Von Wiesner, who in 1917 studied one of the early Vienna cases and a meningo-encephalitis was produced in the monkey inoculated with this organism, and was proved by necropsy. This organism is now known not to be related etiologically to encephalitis. Loewe, Hirshfeld and Strauss have inoculated rabbits and monkeys with filtered extracts of the nasopharynx and filtered nasopharyngeal washings, and claim to have produced a meningo-encephalitis in these animals. The organism which they have cultivated and which they claim to be the cause has proved, in the hands of other investigators, incapable of producing the disease.

Many cases have been studied microscopically and the lesions have been found to be widespread. They affect the parenchymatous, as well as interstitial tissue of the en-

\*Read at the annual meeting of the Colorado State Medical Society, September 7, 8, 9, 1920.

tire central nervous system, no part of the brain or cord being immune from attack. But the changes are much more abundant in certain parts of the central nervous system and diminish in extent and severity from before backward. The favorite site of the lesions is in the basal ganglia and especially in the structures around the third and lateral ventricles, the aqueduct of Sylvius and in the floor of the fourth ventricle. The pia-arachnoid is but little affected, the spinal cord to a variable extent.

The lesions are genuinely inflammatory in character. Infiltration of the walls of the small vessels with lymphocytes and plasma cells takes place. Round cell infiltration, both interstitial and parenchymatous, occurs in circumscribed foci, as well as more diffusely. Neuroglia cells are supposed to take part in this reaction. Small, frequently microscopic hemorrhages and the presence of plasma and lymph in the tissue interspaces are of constant occurrence. Lesions of the nerve cells are not so extensive as in poliomyelitis and there is less neuronophagia.

The widespread dissemination of the lesions, their variation in intensity and in localization in individual cases, condition the protean character of the symptomatology of this disease and the many clinical types that have been described.

The following is an analysis of fifteen cases observed by me:

Of these, all but six gave a positive history of having had influenza within six months previous; but here it must be remembered that in the presence of a severe epidemic, as influenza, any case resembling it—like an ordinary cold—is liable to be mistaken for the graver disease.

The onset was gradual in twelve cases, while in three it was sudden.

In the former, some of the patients complained of malaise, indefinite headaches and chilly sensations; while in others the first symptom was blurring of vision, amounting, at times, to a definite diplopia. This diplopia was liable to disappear for a day or two before it became permanent. Listlessness and easy fatigue were fairly general early symptoms. Two cases had recurring periods of drowsiness, compelling them to lie down for periods varying from one-half to

several hours daily. The evolution of the disease was at times intermittent. One patient was even able to return to her work for a week, before she became so ill that she had to go to bed.

Towards the end of the prodromal period, weakness and prostration increase. In one case, the prodromal period was marked at times by confusion, at others by an unreasonably stubborn behavior combined with great headache.

In five cases, quite severe pain in some part of the body, either the shoulder or the arms and fore-arms, less frequently in the lower extremities, was a feature.

One of the three acute cases became ill with violent headache and some delirium and later developed diplopia. The second at first showed symptoms suggesting an acute meningitis; that is, stiffness of the neck, a fairly well marked Kernig sign, headache and confusion, but the negative spinal fluid disproved the presence of this disease. The later course was typical of encephalitis. The onset in the third case was marked by a stage of rather violent excitement, which lasted two days, then gradually subsided and merged into the typical encephalitis picture.

A rise in temperature was observed in eight of the cases of this series. In the lethargic cases it ran a fairly even course from 100.2° to about 102°, at times showing marked exacerbation.

It is possible that in some of the cases where no febrile temperature was observed that it had, nevertheless, been present at some period of the disease, but was overlooked. Numerous observers, however, apparently have seen cases without febrile temperature.

Lethargy is a symptom so frequent and striking in character that it has given the disease its name. This symptom was present in twelve of the cases observed. The patients lie in bed with arms and legs extended, hands pronated or in a semi-flexed position, thumb and index and middle fingers approximated in the manner typical for Parkinson's disease. The face is expressionless and the patient is apparently asleep. Ordinary efforts to rouse him are unavailing and he responds only to repeated and more



intense stimuli. He is then alert, answers readily and seems to be fairly oriented and his consciousness is clear. The condition does not so much resemble sleep, but appears as one where the threshold of stimulation has been unusually raised, so that a much stronger stimulus is needed to bring on a response. As soon as the effort to keep the patient awake ceases, he relapses into the state of apathy. This lethargy varies greatly in depth in different patients. In one case, lethargy was only apparent. This patient, a bright boy, fifteen years of age, had complete external and internal ophthalmoplegia with complete ptosis. This state simulated the lethargic state, while actually, the patient was extremely alert and kept talking of everything that was going on about him. Restlessness was marked in two patients. It has been claimed by other observers that this occurs especially in connection with the Parkinsonian syndrome. This symptom is extremely distressing to the patients.

Next to lethargy in frequency and impressiveness are the symptoms indicative of lesions of the nuclei of the cranial nerves. The third, fourth and sixth are most frequently affected. The abducens alone was affected bilaterally in two cases; the oculomotor alone in ten; all oculomotor nerves in one case, while only two showed no eye symptoms at all.

When the ninth, tenth or twelfth nerves become involved, we find bulbar symptoms; that is, difficulty in swallowing, inability to protrude the tongue, speech difficulties and interference with respiration. This bulbar syndrome was present in two of my patients. In spite of these very alarming symptoms, both eventually recovered.

Hemiplegia, with retention of urine, in addition to marked lethargy and paralysis of the third nerve, was present in one patient. Her hemiplegia was never complete, but had the typical signs of a cortico-spinal lesion; that is, increased tendon reflexes, ankle clonus, as well as Gordon and Babinski reflexes.

One of the bulbar cases had great tenderness of both sciatics, posterior peroneal and posterior tibial nerves. Both feet were in the position of foot drop, both legs and

thighs quite atrophic. This patient regained his ability to walk very slowly, and for a long time, when standing, was unable to raise his toes from the ground.

Tremor occurred in four cases. In one, there was a fine, rather rapid tremor which was present at all times. In two cases, it was of the paralysis agitans type; that is, it was slow and occurred only at rest, while active motion would arrest it for awhile. The hemiplegic case, above-mentioned, presented a typical intention tremor in both extremities.

The face in most cases lacked expression, and in some had the typical rigid, mask-like aspect, characteristic of paralysis agitans. This applies especially to the patients showing other features of paralysis agitans, namely, tremors at rest, the peculiar position of the upper extremities and hands and, when they were able to be out of bed, the festinating gait. One case showed, during the early stage of the disease, choreic movements, which, in connection with eye movements, palsies and lethargy, produced a very striking picture.

Catalepsy was present in four patients. This symptom, also known as waxy flexibility, consists in the limbs remaining for some time in any position in which they have been placed by the examiner.

Mental symptoms, as some clouding of consciousness, hallucinations of hearing, and excitement, were present in four patients at some time during their illness, but were a marked feature in only two. Another case, which ended fatally within twenty-four hours, had acute maniacal excitement. The hemiplegic case, a woman twenty-eight years of age, has, since her recovery, been committed to the State Hospital for the Insane, as she developed a dementia which resembled arteriosclerotic dementia, with loss of memory, irritability and emotional instability, depression predominating. She cried frequently and readily.

Of the toe signs, the Babinski reflex was observed in two cases, and in two others the Oppenheim and Gordon without the Babinski sign.

A poorly developed Kernig sign and some

rigidity of the neck were present in about half the cases observed.

Complications on the part of other organs were not observed.

In our cases, the laboratory findings were for the most part negative.

The blood in two cases showed marked leucocytosis, but in one of these a coexisting mastoid disease accounted for the increased cell count.

In other cases the leucocyte count was normal. The differential count was normal in one case and was not determined in other cases.

The blood Wassermann was negative in all cases except one, in which there was a definite history of syphilis.

The spinal fluid in all cases showed not any, or only slightly increased pressure. In none was there any increase in globulin.

The cell count varied from 0 cells per cm to 10 cells per cm.

Copper solution was reduced by the spinal fluid in all cases.

The spinal fluid Wassermann was negative in all cases, .6 cc. of spinal fluid being used for the test.

In all but one case, the colloidal gold curve was entirely negative, 0000000000. In this case the colloidal gold curve was 0012200000. This case was definitely luetic, the blood Wassermann being positive, though the spinal fluid Wassermann was negative.

No organisms were found in the spinal fluid in any case, and cultures were uniformly negative.

Differential diagnosis, which in a typical case presenting the classical symptoms of eye muscle paralysis and a slowly developing lethargy is easy, may frequently be most difficult. The first group of diseases to be ruled out are the meningitides. Here the examination of the spinal fluid is of decisive importance. As stated above, it is negative in encephalitis, while in meningitis it shows great changes. In tubercular meningitis, it is under greater pressure, pleocytosis is present and the tubercle bacillus may frequently be found. In epidemic cerebrospinal meningitis, the fluid is turbid or flocculent, containing many leukocytes, in some of which the meningococcus may be found.

In cerebrospinal lues, the Wassermann re-

action is strongly positive, globulin is increased, pleocytosis and a paretic or luetic gold curve are present.

Urinalysis will exclude uremia. Furthermore, when it is borne in mind that the lethargy of encephalitis is not a true coma, and that the patient, when he is aroused, has clear consciousness, these two conditions can be quite readily distinguished.

Encephalitis might also be mistaken for typhoid fever for awhile, until the appearance of splenic enlargement and of rose spots in connection with the typical temperature curve and the Widal test will make the diagnosis clear; and here it must be repeated that lethargy of encephalitis differs greatly from the low, muttering delirium seen in typhoid, while the presence of organic nervous symptoms in encephalitis contrasts greatly with the predominating abdominal symptoms in typhoid.

In one obscure case the diagnosis of brain tumor was entertained for awhile. The patient gave a history of having had lues, and when admitted to the hospital he complained greatly of headache and was at times confused. No cranial nerve symptoms were present. After the first week, he would freewhile. He still complained of headaches. His spinal fluid was negative, except for a quently go to his room to lie down for slightly positive colloidal gold curve, and an x-ray picture failed to show anything pathological. His drowsiness increased progressively. At the end of two weeks, he was taken home by his relatives and died on the following day. No necropsy was obtained, but I believe that we are justified in counting this case as one of lethargic encephalitis.

A diagnosis of hysteria was made in the case of a woman of about thirty years of age, who had just passed through a protracted major episode of a hysterical nature. During this episode she had frequently shown the indifference so often seen in hysterics. After a short normal period, this indifference apparently returned. When out motoring she would go to sleep, and on returning to her room after an outing she collapsed on two occasions. These symptoms were considered to be hysterical by the attending physician until the patient took to her bed and apparently feigned unconscious-



ness. Examination then revealed slight ptosis, a slight rigidity of the neck and an inequality of the knee jerks, which persisted all through her subsequent illness. A doubtful Gordon reflex was present at one examination. The patient also had incontinence of urine and developed delusions—that her legs were cut off, that her father was electrocuted, that a man was under her bed and was about to kill her. Her spinal fluid was negative. She eventually made a good recovery.

In one case a provisional diagnosis of catatonic dementia praecox was made. The patient was a foreigner who understood little or no English. He had no eye symptoms and no rise of temperature at the time of the examination, but was mildly lethargic and had well-marked catatonia.

The mortality, as reported by observers in this country, varies from ten, thirty, thirty-five, up to over forty-one percent. The mortality in the series considered today has been thirty percent.

The duration has varied from two weeks in the mildest cases, to ten weeks. One patient, though able to attend to part of his duties at the present time, still has some of his foot drop, and another still has ptosis and abducens paralysis, although well in all other respects.

The treatment in the cases of this series consisted mainly in careful nursing. Nasal feeding was resorted to if the patients were unable or unwilling to take nourishment. We have administered hexamethylenamine as a routine in most cases. Seven of our patients have received sodium salicylate intravenously daily for a week or ten days. We believe we have had good results from this line of treatment, although one must be very careful in drawing conclusions as to the efficacy of any treatment in a disease which runs such a variable course as encephalitis.

Lumbar puncture and spinal drainage seemed distinctly beneficial to some of the cases and, in these, was repeated when it seemed indicated.

## DISCUSSION.

**Edward Jackson, Denver:** Speaking from my own experience, which was confined to three cases; I think the interesting part was the diagnosis. These cases were all puzzling at the start. In one of mine, as in one of Dr. Neuhaus' cases, we entertained for several days the idea of brain tumor. There was in that case severe headache. Two of the cases have recovered entirely; the third still has a very distinct and marked paresis of the externi, after nearly three months without very much improvement. I would suppose, however, that the probabilities are still in favor of complete recovery.

The question came up in two of these cases as to whether it could be syphilis. The symptoms were very marked, and this possible explanation was pursued very closely. One article I remember by Dickson has dwelt very strongly on that—the great difficulty of making the diagnosis. As one of Dr. Neuhaus' cases illustrates, it is quite possible for the patient to have lethargic encephalitis and syphilis. There is a very considerable number of patients in the community from whom you can get a history of syphilis, and a great many more whom you can suspect of having had syphilis; so that in any case, the question of syphilis will be raised. I believe the pathologic examination shows striking similarity in the infiltration in the two diseases; perhaps a little difference in the relative involvement of different vessels; but the striking anatomical condition underlying the symptoms is much the same. No doubt many of these cases occurred in the early days of the epidemic that were not recognized; and the slowness with which they were recognized, until other cases had been reported, has been illustrated in several I have heard of.

In my cases, two have pretty clear histories of attacks of influenza, and one no history of a previous attack of influenza, but that does not exclude the possibility that the disease is itself a manifestation of influenza. It seems to me to not be excluded by the record, and it certainly is a very curious coincidence that the previous epidemics have all been associated with epidemics of influenza, that preceded these epidemics of encephalitis.

**George A. Moleen, Denver:** I first want to compliment Dr. Neuhaus on the excellence of his report and the painstaking manner in which he has summarized the cases, and the variety of cases which he has presented. I think that one can draw from his cases, as well as from those which one sees, outside of the reports in the literature, the great diversity of the clinical manifestations. I don't think one can rule out so easily tubercular meningitis in those cases which have in their history a previous infection of that organism. Contrary to the observations of the essayist, a case I have in mind without a history of influenza had a considerable increase in the spinal fluid pressure, and an increase in the cell count, which was limited to lymphocytes which, of course, is the characteristic finding in tuberculous meningitis. There was in this case a distension of the ventricle as well. The case began with intense headache, and more neuralgic in character than is found in tuberculous cases. There was no lethargy, and following that were the eye symptoms. The case gradually came on to trachoma, and later made a complete recovery, as a part of the living up of the tuberculous condition which was then diagnosed as that of the miliary form. Another case occurred in a boy who had had influenza a year before, and about six weeks prior to his present illness had some slight cold and recovered

without going to the hospital. Then he began to show difficulties in walking, and was taken to the hospital because of his ataxia. Then he began to have a little trouble of vision, and then lost his ability to swallow, at which time he was brought to Denver. Examination revealed that he had almost complete paralysis of the soft palate, and paralysis of the tongue, which was promptly followed by atrophy; this was followed by a weakening of the arm, and in the lower extremities he later presented the appearance of a poliomyelitis. He was fed by a tube for some two or three weeks, and the first manifestation to clear up was the weakness of the eye muscles. Later, the palate began to move, and a week or so after that, I think it was within five or seven days, he was able to swallow, and then the muscles of the extremities recovered and he finally made a complete recovery. Curiously enough, the tongue filled out in the atrophic area and resumed its former appearance.

A third case, which shows again a diversity in the manifestation, a case which had no influenzal attack, but was taken to be a hysteria, for which I was called to see her. She had clonic unilateral spasms, and these continued. She had a very slight ocular deviation and slight optic atrophy, and at the time I saw her the former had disappeared. She continued to have the clonic spasms at intervals of several minutes, and they would increase in maximum for about one or two minutes and then subside, to recur in two or three minutes. The case progressed along with these conditions until the lethargy was complete, when she became comatose and died.

I think these three cases indicate the great variety of manifestations one may encounter in this condition. I am also constrained to add with reference to the pathology, in view of the findings to which Dr. Jackson has made reference, that this condition has been noted by several observers under the heading of noninflammatory hemorrhagic encephalitis, which probably describes the condition better than the term lethargic, whose use a great many of the attendants upon the neurologic section this year were inclined to discourage.

**Dr. Neuhaus, (closing):** As to the name of the disease I fully agree with Dr. Moleen that it is a misnomer as the patient and not the disease is lethargic. The term has the advantage of being generally recognized.

I want to stress the importance of a careful inquiry as to the possibility of lues existing. Brain syphilis furnishes many syndromes closely resembling epidemic encephalitis. I wish to say a word as to residuals. Many cases make a complete recovery but a certain percentage show residual symptoms after a long time. I have seen a weakness of the external recti months after the patient had returned to work. Another case retains a slight facial paralysis today, nine months after his illness.

Careful nursing is probably the best we can do for these patients. Several of my patients required nasal feeding on account of inability or disinclination to take nourishment. One patient came to the hospital with a distended bladder from which 140 ounces of urine were removed by catheter.

## News Notes

Dr. A. J. Mishkind, formerly of Denver, has moved to Chicago, where he will continue in general practice.

Dr. R. E. Jones, formerly of Fort Morgan, has recently located in Denver and has resumed practice with offices at 418 Mack Building.

Denver surgeons who are known to have attended the Western Surgical Association meeting at Los Angeles, December 3-4, are: H. R. McGraw, Leonard Freeman, S. Fosdick Jones and F. H. McNaught. Dr. H. G. Wetherill, now located in California for the winter, was on the program for a paper on "Who's Who in the Hospital—An Attempt at Constructive Criticism".

Dr. Edgar A. Peterson, recently admitted to membership in the Medical Society of the City and County of Denver, left in the latter part of November to attend meetings of the Southern Medical Association at Louisville, Ky., and the Southwestern Medical Association at Wichita, Kan., being on the program of both meetings. From these points he expected to visit Washington, D. C., and Baltimore.

Dr. J. N. Hall of Denver, while in Chicago attending a special meeting of the delegates of the American Medical Association, was rather suddenly stricken with pneumonia. He is now convalescing, and at the time of writing was expecting to go soon from Chicago to Hot Springs, Ark., for a brief stay. We quote as follows from a letter written by Dr. Hall December 1: "The evening after leaving you at the A. M. A. Building I had a chill, vomiting, backache and evidently soon became delirious. The next morning I tried to phone Work, who was also at the Auditorium Hotel, but could not get him. I finally got Dr. Frank Smithies, who had me moved to the Augustana Hospital, where I was well taken care of. I had an upper and middle-lobed right lobar pneumonia. Got away from the hospital . . . on November 29th. After I got to the hospital, Work, not having seen me at the meeting, began tracing me up at the hotel, finally located me and came out at once. He straightened all the kinks out, got me a fine pair of nurses and a better room and took charge of everything. I never needed nor appreciated a good friend more fully. Billings saw me daily in consultation until I was out of the woods, and Smithies and his associates, Karshner and Oleson, were fine. Going to Hot Springs, Ark., shortly and hope to be home by Christmas. My love to all of the boys."

Drs. L. H. Wade and F. B. Stephenson of Denver, who have been jointly engaged in the practice of roentgenology, announce that Dr. Wade will retire January 1 from the practice of roentgenology to enter the field of general surgery. Dr. Stephenson will continue x-ray work independently, and Dr. Wade will for the present retain office facilities at 436 Metropolitan Building, as heretofore.

The Cancer Week instituted by the American Society for the Control of Cancer, November 14-21, was instrumental in bringing before the laity and the profession the importance of reducing the mortality by early diagnosis and operative intervention. Lantern slides exhibited to thousands of movie patrons, talks to church and fraternal organizations, clinics in various hospitals, all helped to spread the "message of hope" that cancer is curable if attacked early.

Dr. F. P. Gengenbach of Denver left for Chicago December 8 to attend the Council on Scientific (Continued on Page 329.)



# List of Members of the Colorado State Medical Society

December 1st, 1920

Name.	Postoffice.	Constituent Society.	Name.	Postoffice.	Constituent Society.
Aberg, A. ....	Del Norte...	San Luis Valley	Bingham, W. J. ....	Denver .....	Denver
Abrahams, H. E. ....	Trinidad .....	Las Animas	Birkenmayer, W. C. ....	Denver .....	Denver
Adami, J. Geo. ....	Montreal, Quebec ...	Denver	Black, H. A. ....	Pueblo .....	Pueblo
Adams, E. S. ....	Trinidad .....	Las Animas	Black, J. A. ....	Pueblo .....	Pueblo
Adams, O. F. ....	Segundo .....	Las Animas	Black, Melville .....	Denver .....	Denver
Adams, W. A. ....	Denver .....	Denver	Blackerby, R. E. ....	Branson .....	Las Animas
Adkinson, R. C. ....	Florence .....	Fremont	Blackman, A. A. ....	Colorado Springs...	El Paso
Agan, J. N. ....	Pierce .....	Weld	Blackmer, F. J. ....	Steamboat Sp. ....	Northwestern
Albi, Rudolph .....	Denver .....	Denver	Blackwood, H. A. ....	Weldona .....	Morgan
Allen, H. J. ....	Denver .....	Denver	Blickensderfer, G. M. ....	Denver .....	Denver
*Allen, H. W. ....	Boulder .....	Boulder	Block, Leon .....	Denver .....	Denver
Allen, J. H. ....	Denver .....	Denver	Blosser, J. R. ....	Denver .....	Denver
Allen, K. D. A. ....	Denver .....	Denver	Blotz, B. B. ....	Rocky Ford .....	Otero
Allen, L. R. ....	Colorado Springs...	El Paso	Blotz, B. F. ....	Rocky Ford .....	Otero
Allen, W. P. ....	Greeley .....	Weld	Bluemel, C. S. ....	Denver .....	Denver
Amesse, John W. ....	Denver .....	Denver	Blumberg, A. M. ....	Denver .....	Denver
Anderson, A. ....	Ault .....	Weld	Bode, Paul De. ....	Vernon .....	Morgan
Anderson, Geo. M. ....	Casper, Wyo. ....	Denver	Bolten, L. C. ....	Cedar Edge .....	Delta
Anderson, T. ....	Denver .....	Denver	Bonesteel, A. E. ....	Denver .....	Denver
Andrew, C. F. ....	Longmont .....	Boulder	Bonney, S. G. ....	Denver .....	Denver
Andrew, John .....	Longmont .....	Boulder	Booth, C. O. ....	Fleming .....	Northeast
Andrews, Geo. D. ....	Walsenburg .....	Huerfano	Booth, L. R. ....	Aztec, N. Mex. ....	San Juan
Apperson, Ed. L. ....	Denver .....	Denver	Bortree, L. W. ....	Colorado Springs...	El Paso
Arndt, Rudolph W. ....	Denver .....	Denver	Bouslog, J. S. ....	Denver .....	Denver
Arnell, James R. ....	Denver .....	Denver	Boutros, Amin .....	Denver .....	Denver
Arnold, C. R. ....	Colorado Springs...	El Paso	Boyd, E. T. ....	Denver .....	Denver
Arnold, W. W. ....	Colorado Springs...	El Paso	Boyd, Geo. A. ....	Colorado Springs...	El Paso
Asquith, A. C. ....	Denver .....	Denver	Braden, J. M. ....	Lafayette .....	Boulder
Atcheson, Geo. ....	Denver .....	Denver	Brady, E. J. ....	Colorado Springs...	El Paso
Atkinson, T. E. ....	Greeley .....	Weld	Bramley, J. R. ....	Denver .....	Denver
Atwood, A. D. ....	Denver .....	Denver	Brandenburg, H. P. ....	Denver .....	Denver
Aufnwasser, H. W. ....	Denver .....	Denver	Brandon, E. Agnes. ....	Denver .....	Denver
Aust, T. H. ....	Cedar Edge .....	Delta	Brethouwer, C. G. ....	Montrose .....	Montrose
Averill, H. W. ....	Evans .....	Weld	Brewer, E. F. ....	Aguilar .....	Las Animas
Bagot, W. S. ....	Denver .....	Denver	Brinton, W. T. ....	Cripple Creek .....	Teller
Bailey, M. M. ....	Loveland .....	Larimer	Broman, O. F. ....	Greeley .....	Weld
Baird, Wm. J. ....	Boulder .....	Boulder	Bronson, D. A. ....	Smugglers .....	Montrose
Baker, Madeleine M. ....	Denver .....	Denver	Bronfin, Isadore D. ....	Denver .....	Denver
Baker, R. C. ....	Denver .....	Denver	Brown, E. H. ....	Pueblo .....	Pueblo
Baker, W. H. ....	Pueblo .....	Pueblo	Brown, Geo. E. ....	Denver .....	Denver
Baker, W. T. H. ....	Pueblo .....	Pueblo	Brown, H. C. ....	Denver .....	Denver
Bancroft, G. W. ....	Colorado Springs...	El Paso	Brown, H. J. ....	Colorado Springs...	El Paso
Bane, Wm. C. ....	Denver .....	Denver	Brown, L. G. ....	Colorado Springs...	El Paso
Bane, W. M. ....	Denver .....	Denver	Brown, M. D. ....	Denver .....	Denver
Barney, J. M. ....	Denver .....	Denver	Brown, T. W. ....	Colorado Springs...	El Paso
Barney, N. E. ....	Sterling .....	Northeast	Brown, Wm. S. ....	Denver .....	Denver
Barrett, G. W. ....	Englewood .....	Northeast	Brownell, W. F. ....	Ft. Collins .....	Larimer
Baskin, M. J. ....	Denver .....	Denver	Brunk, A. S. ....	La Junta .....	Otero
Bast, Lee .....	Delta .....	Delta	Bryson, E. H. ....	Grand Junction .....	Mesa
Bates, Mary E. ....	Denver .....	Denver	Buchtel, F. C. ....	Denver .....	Denver
Baum, Harry L. ....	Denver .....	Denver	Buck, W. E. ....	Pueblo .....	Pueblo
Beachley, John V. ....	Stratton .....	Kit Carson	Bull, H. R. ....	Grand Junction .....	Mesa
Beaghtler, Amos L. ....	Denver .....	Denver	Bundsen, C. A. ....	Denver .....	Denver
Beall, Kate W. ....	Denver .....	Denver	Burdick, W. T. ....	Denver .....	Denver
Beatty, J. T. ....	Denver .....	Denver	Burgin, Chas. H. ....	Delta .....	Delta
Beck, L. H. ....	Manitou .....	El Paso	Burket, R. S. ....	Denver .....	Denver
Beck, N. C. ....	Denver .....	Denver	Burkhard, Ed. D. ....	Pueblo .....	Pueblo
Beere, Rose Kidd. ....	Denver .....	Denver	Burnett, A. L. ....	Silverton .....	San Juan
Beers, Ida V. ....	Denver .....	Denver	Burnett, C. T. ....	Denver .....	Denver
Beggs, Wm. H. ....	Denver .....	Denver	Burnett, N. M. ....	Lamar .....	Prowers
Bell, Samuel H. ....	Montrose .....	Montrose	Burns, T. M. ....	Denver .....	Denver
Bellrose, N. W. ....	Eaton .....	Weld	Bush, J. H. ....	Sterling .....	Northeast
Bennett, E. C. ....	Boulder .....	Boulder	Butler, S. S. ....	Graycreek .....	Las Animas
Bergen, Frank L. ....	Burlington .....	Kit Carson	Butterbaugh, Wm. S. ....	Engleburg .....	Las Animas
Berlin, Wm. C. K. ....	Denver .....	Denver	Calkins, H. A. ....	Leadville .....	Lake
Beshoar, Ben .....	Trinidad .....	Las Animas	Calkins, R. W. ....	Cortez .....	San Juan
Beyer, T. E. ....	Denver .....	Denver	Calonge, G. E. ....	La Junta .....	Otero
Biglow, May T. ....	Denver .....	Denver	Campbell, J. ....	Boulder .....	Boulder

Name.	Postoffice.	Constituent Society.	Name.	Postoffice.	Constituent Society.
Campbell, W. A....	Colorado Springs....	El Paso	Currey, E. M.....	Hastings .....	Las Animas
Canby, H. S.....	Denver .....	Denver	Dake, W. M.....	Palmer Lake .....	Denver
Carey, J. D.....	Timnath .....	Larimer	Dale, J. E.....	Ft. Collins .....	Larimer
Carmichael, Paul W.	Sopris .....	Las Animas	Dally, H. H.....	Ludlow .....	Las Animas
Carmody, T. E.....	Denver .....	Denver	Danahey, T. J.....	Denver .....	Denver
Cary, F. H.....	Denver .....	Denver	Daniel, J. H.....	Sterling .....	Northeast
Cary, G. C.....	Grand Junction .....	Mesa	Darling, J. C.....	Durango .....	San Juan
Case, A. G.....	Denver .....	Denver	Davenport, L. O....	Craig .....	Northwestern
Cashburn, F. E.....	Lamar .....	Prowers	Davies, J. D.....	Alamosa.....	San Luis Valley
Cassel, O. M.....	Burlington .....	Kit Carson	Davis, A. C.....	Wiley .....	Prowers
Cattermole, Geo. H.	Boulder .....	Boulder	Davis, A. L.....	Durango .....	San Juan
Cavey, J. E.....	Stratton .....	Kit Carson	Davis, J. B.....	Denver .....	Denver
Cecchini, A. S.....	Denver .....	Denver	Davis, J. W.....	Aguilar .....	Las Animas
Chamberlain, F. C.	Los Angeles, Cal....	Denver	Davis, T. A.....	Portland .....	Fremont
Chamberlain, R. S.	Denver .....	Denver	Davis, Wm. H.....	Denver .....	Denver
Chambers, J. C.....	La Jara.....	San Luis Valley	Davlin, C. A.....	Alamosa.....	San Luis Valley
Champlin, H. H.....	Denver .....	Denver	*Dawson, J. K.....	Sterling .....	Northeast
Chandler, G. B.....	Calhan .....	El Paso	Day, H. S.....	Delta .....	Mesa
Chapman, W. S....	Walsenburg .....	Huerfano	Day, W. A.....	Delta .....	Delta
Charles, Robert L.	Denver .....	Denver	Dean, E. F.....	Denver .....	Denver
Chase, A. M.....	Denver .....	Denver	DeBeque, W. A. E.	DeBeque .....	Denver
Chesmore, H. P....	Colorado Springs....	El Paso	Delehanty, Ed. ....	Denver .....	Denver
Childs, S. B.....	Denver .....	Denver	Dennis, E. G.....	Montrose .....	Montrose
Chipman, J. C.....	Sterling .....	Northeast	Dennis, F. L.....	Colorado Springs....	El Paso
Chisholm, A. J.....	Trinidad .....	Las Animas	Denny, R. H.....	Elbert .....	Denver
Christopher, D. L...	Colorado Springs....	El Paso	DeSobe, J. O.....	Denver .....	Denver
Church, W. F.....	Greeley .....	Weld	Didrickson, F. G...	Montrose .....	Montrose
Clagett, O. F.....	Carbondale .....	Garfield	Dodge, H. C.....	Boulder .....	Boulder
Clark, L. H.....	Mancos .....	San Juan	Dodge, H. O.....	Boulder .....	Boulder
Clarke, E. R.....	Ft. Morgan .....	Morgan	Dorset, B. C.....	Denver .....	Denver
Clarke, Edwin A...	Akron .....	Unattached	Douglass, A. L....	Denver .....	Denver
Clarke, L. G.....	Glenwood Springs...	Garfield	Downing, E. D....	Woodman .....	El Paso
Cleland, W. S.....	Delta .....	Delta	Dreschler, Wm. ....	Denver .....	Denver
Clow, J. E.....	Denver .....	Denver	Drinkwater, R. L...	Denver .....	Denver
Cochran, James D.	Haxtun .....	Northeast	Driscoll, W. E....	Pagoda .....	Northwestern
*Coffman, F. R....	Denver .....	Denver	Drisdale, W. E....	Chandler .....	Fremont
Cohen, H. M.....	Denver .....	Denver	Drown, L. M.....	Denver .....	Denver
Colby, H. E.....	Holly .....	Prowers	Dunkle, R. C.....	Cokedale .....	Las Animas
Cole, J. H.....	Oak Creek ....	Northwestern	Dunklee, Geo. K...	Denver .....	Denver
Coleman, O. E.....	Denver .....	Denver	Dunlop, Josephine N.	Pueblo .....	Pueblo
Conant, E. F.....	Denver .....	Denver	Duboff, W. G.....	Edgewater .....	Denver
Condon, C. E.....	Breckenridge .....	Lake	Durnell, A.....	Walsenburg .....	Huerfano
Conway, L. A.....	Colorado Springs....	El Paso	Dutton, F. G.....	Julesburg .....	Northeast
Cook, D. M.....	Julesburg .....	Northeast	Dworsak, Z. von...	Denver .....	Denver
Cook, L. C.....	Golden .....	Denver	Dyde, C. B.....	Greeley .....	Weld
Cooper, C. E.....	Denver .....	Denver	Dymenberg, N. ....	Minturn .....	Denver
Cooper, Henry S...	Denver .....	Denver	Eakins, C. F.....	Brush .....	Morgan
Cooper, Horace S...	Denver .....	Denver	Earley, A. H.....	Denver .....	Denver
Coover, D. H.....	Denver .....	Denver	Edson, C. E.....	Denver .....	Denver
Copeland, W. C....	Hotchkiss .....	Delta	Edwards, E. G....	La Junta .....	Otero
Corlett, T. G.....	Colorado Springs....	El Paso	Edwards, G. M....	Denver .....	Denver
Corwin, R. W.....	Pueblo .....	Pueblo	Edwards, S. R....	Ft. Collins .....	Larimer
Costigan, Daniel D.	Trinidad .....	Las Animas	Eichberg, S. B....	Denver .....	Denver
Craghead, W. S....	Denver .....	Denver	Eigler, C. O.....	Denver .....	Denver
Craig, A. C.....	Denver .....	Denver	Elder, C. S.....	Denver .....	Denver
Craig, A. R.....	Mesa .....	Mesa	Elliott, C. E.....	Victor .....	Teller
Craig, H. F.....	Denver .....	Denver	Elliott, C. H.....	Denver .....	Denver
Craig, Wm. B.....	Denver .....	Denver	Elliott, H. R.....	Denver .....	Denver
Craighead, J. W...	Pueblo .....	Pueblo	Elliott, J. T.....	Denver .....	Denver
Craney, J. P.....	Denver .....	Denver	Ellis, C. A.....	Denver .....	Denver
Crawford, E.....	Hudson .....	Weld	Elsner, J. L.....	Denver .....	Denver
Crawley, Z. T.....	Monte Vista..	San Luis Valley	Emery, H. G.....	Bennett .....	Denver
Creighton, B. B....	Manitou .....	El Paso	Engelson, C. J....	Brookings, S. D....	Denver
Crews, Geo. B.....	Denver .....	Denver	Enos, Clinton ....	Denver .....	Denver
Crisp, J. D.....	Denver .....	Denver	Epler, Crum .....	Pueblo .....	Pueblo
Crisp, Wm. H.....	Denver .....	Denver	Erich, A. F.....	Paonia .....	Delta
Crook, W. W.....	Glenwood Springs..	Garfield	Espey, J. G.....	Trinidad .....	Las Animas
Crosby, L. G.....	Denver .....	Denver	Espey, J. R.....	Trinidad .....	Las Animas
Crouch, J. B.....	Woodman .....	El Paso	Evans, C. H.....	Colorado Springs....	El Paso
Cryer, W. H.....	Colorado Springs....	El Paso	Evans, E. E.....	Ft. Morgan .....	Morgan
Cummings, G. D...	Florence .....	Fremont	Evans, L. P.....	Morley .....	Las Animas
Cunningham, A. ...	Denver .....	Denver	Evans, T. J.....	Colorado Springs....	El Paso
Curfman, G. H....	Salida .....	Chaffee	Ewing, G. F.....	Julesburg .....	Northeast
Currgan, M. D....	Denver .....	Denver	*Faith, A. H.....	Kremmling .....	Denver
Curtis, H. B.....	Denver .....	Denver	Fantz, T. S.....	Denver .....	Denver



Name.	Postoffice.	Constituent Society.	Name.	Postoffice.	Constituent Society.
Farrington, F. H.	Boulder	Boulder	Guthrie, Alice B.	Denver	Denver
Farthing, C. H.	Meeker	Garfield	Guthrie, Ewing C.	Denver	Denver
Faust, F. A.	Colorado Springs	El Paso	Guthrie, J. F.	Vineland	Pueblo
Fee, L. W.	Wiley	Prowers	Hadley, Edgar	Montrose	Montrose
Ferris, C. A.	Denver	Denver	Hagerman, M. D.	Las Animas	Otero
Ferguson, J. H.	Colorado Springs	El Paso	Haggart, John	Durango	San Juan
Fezer, Florence	Greeley	Weld	Hall, A. Z.	Eaton	Weld
Filmer, B. A.	Denver	Denver	Hall, H. E.	La Junta	Otero
Finney, H. S.	Denver	Denver	Hall, Josiah N.	Denver	Denver
Finney, R. H.	Pueblo	Pueblo	Halley, S. C.	Ft. Collins	Larimer
Finnoff, Wm. C.	Denver	Denver	Halley, W. H.	Denver	Denver
Fisher, Carl D. W.	Denver	Denver	Ham, Judson B.	Denver	Denver
Fitch, E. L.	Denver	Denver	Haney, J. R.	Colorado Springs	El Paso
Fitzgerald, D. L.	Hartman	Prowers	Hanford, P. O.	Colorado Springs	El Paso
Foley, John Wm.	Denver	Denver	Hanson, F. P.	Gunnison	Fremont
Forbes, R. P.	Denver	Denver	Hanson, K. K.	Grand Junction	Mesa
Ford, D. E.	East Weymouth, Mass.	Las Animas	Hardesty, W. B.	Berthoud	Larimer
Ford, G. R.	Trinidad	Las Animas	Hards, I. B.	Berwind	Las Animas
Ford, J. E.	Grand Junction	Mesa	Hardy, J. C.	Las Animas	Otero
Forhan, T. J.	Calcite	Las Animas	Harmer, W. W.	Greeley	Weld
Forney, F. A.	Woodman	El Paso	Harris, Allen H.	Denver	Denver
Forster, A. M.	Colorado Springs	El Paso	Harris, C. E.	Woodman	El Paso
Foster, J. M.	Denver	Denver	Harrison, Fleet H.	Gilman	Denver
Fowler, Harmon L.	Denver	Denver	Hart, J. A.	Geneva, N. Y.	El Paso
Fowler, Ora S.	Denver	Denver	Hart, J. F.	Julesburg	Northeast
Fox, M. R.	Sterling	Northeast	Hartwell, John B.	Colorado Springs	El Paso
Frank, Lorenz W.	Denver	Denver	Harvey, Horace G.	Denver	Denver
Fraser, M. Ethel V.	Denver	Denver	Haskell, E. E.	Windsor	Weld
Frazer, R. W.	Denver	Denver	Hassenplug, G. K.	Denver	Denver
Freeman, Leonard	Denver	Denver	Hassenplug, Wm. F.	Cripple Creek	Teller
Freudenthal, A.	Trinidad	Las Animas	Hawkins, T. H.	Boundbrook, N. J.	Denver
Friedman, Emanuel	Denver	Denver	Hays, W. E.	Segundo	Las Animas
Friend, F. Milton	Lamar	Prowers	Hazlett, W. H.	Paonia	Delta
Fugard, A. L.	Pueblo	Pueblo	Healy, Michael, D.	Denver	Denver
Fuller, C. R.	Salida	Chaffee	Hegner, C. F.	Denver	Denver
Gale, M. Jean	Denver	Denver	Heller, Frederick M.	Pueblo	Pueblo
Gallaher, T. J.	Denver	Denver	*Heller, P. H.	Pueblo	Pueblo
Gardiner, C. F.	Colorado Springs	El Paso	Henderson, H. S.	Grand Junction	Mesa
Garwood, H. G.	Denver	Denver	Henkle, F. W. E.	Silverton	San Juan
Garvin, D. Edson	Golden	Denver	Helper, A. H.	Newcastle	Garfield
Gengenbach, F. P.	Denver	Denver	Hepp, G. Brinton	Denver	Denver
Gelien, Johanna	Denver	Denver	Hereford, J. H.	Colorado Springs	El Paso
George, McLeod M.	Denver	Denver	Herrick, John C.	Denver	Denver
Gibson, J. D.	Denver	Denver	Herrman, L. L.	Alamosa	San Luis Valley
Giese, C. O.	Colorado Springs	El Paso	*Hershey, E. P.	Denver	Denver
Giffin, L. M.	Boulder	Boulder	Herson, R. G.	La Junta	Otero
Giffin, Clay E.	Boulder	Boulder	Hess, Wm. L.	Denver	Denver
Gilbert, G. B.	Colorado Springs	El Paso	Hetherington, A. J.	Hagerman, N. Mex.	Boulder
Gilbert, O. M.	Boulder	Boulder	Hick, L. A.	Delta	Delta
Gill, A. E.	Berwind	Las Animas	Hickey, Clinton G.	Denver	Denver
Gillaspie, Carbon	Boulder	Boulder	Hickey, H. L.	Denver	Denver
Gillett, O. R.	Colorado Springs	El Paso	Higbee, C. F.	Fowler	Otero
Gilmore, G. B.	Colorado City	El Paso	Higgins, John W.	Denver	Denver
Gleason, R. L.	Wellington	Larimer	Hill, E. C.	Denver	Denver
Good, A. H.	Gunnison	Montrose	Hill-Crawford, J. T.	Los Angeles	Denver
Gooding, B. A.	Ft. Collins	Larimer	Hill, H. C.	Monte Vista	San Luis Valley
Goodloe, Hart	Colorado Springs	El Paso	Hill, W. K., Jr.	Colorado Springs	El Paso
Goodson, H. C.	Colorado Springs	El Paso	Hillkowitz, Philip	Denver	Denver
Gorsuch, John C.	Denver	Denver	Hillyer, W. E.	Boulder	Boulder
Gothard, J. W.	Palisade	Mesa	Hinshaw, J. D.	Hurley, N. M.	Fremont
Gotthelf, I. L.	Saguache	San Luis Valley	Hoag, D. E.	Pueblo	Pueblo
Graham, Chas. A.	Denver	Denver	Hoagland, H. W.	Colorado Springs	El Paso
Graham, E. V.	Breckenridge	Lake	Holden, G. Walter	Denver	Denver
Graham, R. F.	Greeley	Weld	Holland, A. C.	Colorado Springs	El Paso
Grant, W. W.	Denver	Denver	Holmes, R. E.	Cañon City	Fremont
Graves, C. H.	Cañon City	Fremont	Hopkins, G. A.	Glenwood Springs	Garfield
Graves, H. C.	Cañon City	Fremont	Hopkins, John R.	Denver	Denver
Green, H. A.	Boulder	Boulder	Horan, E. J.	Glenwood Springs	Garfield
Green, J. L.	Eagle	Garfield	Horton, D. J.	LaSalle	Weld
Greig, Wm.	Sterling	Northeast	Hotchkiss, Walter K.	Brighton	Denver
Groom, Robert	Boulder	Boulder	Howard, C. J.	Denver	Denver
Groves, D. C.	Olathe	Montrose	Howard, J. F.	Denver	Denver
Grover, B. B.	Colorado Springs	El Paso	Howard, T. Leon	Denver	Denver
			Howell, J. D.	Loveland	Larimer

Name.	Postoffice.	Constituent Society.	Name.	Postoffice.	Constituent Society.
Howell, Thos. F....	Alamosa.....	San Luis Valley	Larson, J. H.....	Wray .....	Mesa
Hudson, R. ....	Denver .....	Denver	Latta, C. J.....	Sterling .....	Northeast
Huelsmann, L. C....	Colorado Springs....	El Paso	Lawney, Eleanor ..	Denver .....	Denver
Hughes, T. A.....	Denver .....	Denver	Lawson, J. A.....	Rocky Ford .....	Otero
Hummel, E. P.....	Sterling .....	Northeast	Lay, H. T.....	Denver .....	Denver
Hunnicut, W. P....	Pueblo .....	Pueblo	Leavitt, Byron C....	Millbrook .....	Denver
Hurley, J. R.....	Antonito.....	San Luis Valley	Lee, G. H.....	Denver .....	Denver
Hutchinson, A. F....	Durango .....	San Juan	Lee, H. C.....	Trinidad .....	Las Animas
Hutton, V. A.....	Florence .....	Fremont	Lehan, J. W.....	Greeley .....	Weld
Inglis, John .....	Denver .....	Denver	*Lemen, L. E.....	Denver .....	Denver
Ingraham, C. B....	Denver .....	Denver	Lennox, P. M.....	Colorado Springs....	El Paso
Irwin, Robert S....	Denver .....	Denver	LeRossignol, W. J..	Rifle .....	Garfield
Jackson, Edward ..	Denver .....	Denver	Levy, Maurice .....	Denver .....	Denver
Jackson, F. A.....	Salida .....	Chaffee	Levy, Robt. ....	Denver .....	Denver
Jaeger, Chas. ....	Denver .....	Denver	Lewis, G. B.....	Denver .....	Denver
James, T. L.....	Colorado Springs....	El Paso	Lewis, Robert ....	Denver .....	Denver
Jayne, W. A.....	Denver .....	Denver	Lewis, W. B.....	Denver .....	Denver
Jeannotte, J. A....	Leadville .....	Lake	Lewis, W. H.....	Hotchkiss .....	Delta
Jenkins, E. W.....	Denver .....	Denver	Leyda, James H....	Clayton, N. M.....	Denver
John, Grant H.....	Denver .....	Denver	Leyda, Paul .....	Frederick .....	Boulder
Johnson, C. E.....	Denver .....	Denver	Libby, Geo. E.....	Denver .....	Denver
Johnson, E. E.....	Cortez .....	San Juan	Liddle, E. B.....	Colorado Springs....	El Paso
Johnson, H. A.....	Rifle .....	Garfield	Lincoln, C. L., Jr..	Denver .....	Denver
Johnson, Margaret.	Boulder .....	Boulder	*Lindahl, John ....	Denver .....	Denver
Johnston, W. S....	Pueblo .....	Pueblo	Lindsay, Kate ....	Boulder .....	Boulder
Johnston, R. S....	La Junta .....	Otero	Lingenfelter, G. P..	Denver .....	Denver
Jolley, W. A.....	Boulder .....	Boulder	Lingenfelter, A. A..	Durango .....	San Juan
Jones, Robt. E.....	Ft. Morgan .....	Denver	Lipscomb, J. M....	Denver .....	Denver
Jones, S. Fosdick...	Denver .....	Denver	Little, Lowell.....	Hayden .....	Northwestern
Jones, Wm. W.....	Denver .....	Denver	Little, W. T.....	Cañon City .....	Fremont
Joslyn, S. A.....	Loveland .....	Larimer	Lockard, Lorenzo B..	Denver .....	Denver
Judson, A. R.....	Monte Vista.....	San Luis Valley	Lockhard, W. G....	New Castle .....	Garfield
Katzman, Maurice..	Boulder .....	Boulder	Lockwood, C. E....	Olathe .....	Montrose
Keep, Frank E.....	Denver .....	Denver	Lockwood, F. W....	Ft. Morgan .....	Morgan
Keller, W. C.....	Genoa .....	Kit Carson	Löf, A. J. O.....	Denver .....	Denver
Kelley, John P....	Golden .....	Denver	Long, Margaret ...	Denver .....	Denver
Kelsey, Otis H.....	Denver .....	Denver	Long, T. F.....	Denver .....	Denver
Kennedy, Arthur L. .	Denver .....	Denver	Loomis, P. A.....	Colorado Springs....	El Paso
Kennedy, Geo. A....	Limon .....	Denver	Lovas, Arnt .....	Littleton .....	Denver
Kennelley, F. C....	Denver .....	Denver	Love, Minnie C. T..	Denver .....	Denver
Kenny, F. W.....	Denver .....	Denver	Love, Tracy R.....	Denver .....	Denver
Kent, Wallace C....	Denver .....	Denver	Low, H. T.....	Pueblo .....	Pueblo
Kerley, G. L.....	La Junta .....	Otero	Lowen, Chas. J....	Denver .....	Denver
Kern, B. F.....	Platteville .....	Weld	Lucas, Wilbur ....	Pueblo .....	Pueblo
Kernaghan, M. ....	Steamboat Springs	Northwestern	Lucy, D. A.....	Denver .....	Denver
Kickland, W. A....	Ft. Collins .....	Larimer	Lunt, L. K.....	Denver .....	Denver
King, D. M.....	Denver .....	Denver	Lusby, A. C.....	Brush .....	Morgan
King, Robt. W....	Denver .....	Denver	Lyman, Chas. B....	Denver .....	Denver
King, W. R.....	Ft. Morgan .....	Morgan	Lynch, E. B.....	Leadville .....	Lake
King, W. W.....	Cripple Creek .....	Teller	Lyons, Oliver .....	Denver .....	Denver
Kinney, J. E.....	Denver .....	Denver	MacArthur, A. M....	Delta .....	Delta
Kleiner, Moses .....	Denver .....	Denver	Macomber, Geo. N..	Denver .....	Denver
Knoch, N. H.....	Denver .....	Denver	Macomber, H. G....	Denver .....	Denver
*Knott, A. W.....	Montrose .....	Montrose	MacLean, Luke ....	Pueblo .....	Pueblo
Knott, Isaiah, Jr..	Montrose .....	Montrose	Madden, J. H.....	Colorado Springs....	El Paso
Knowles, E. W....	Greeley .....	Weld	Madler, N. A.....	Greeley .....	Weld
Knowles, T. R.....	Colorado Springs....	El Paso	Magruder, A. C....	Colorado Springs....	El Paso
Knuckey, C. T....	Lamar .....	Prowers	Mahoney, J. J.....	Colorado Springs....	El Paso
Kortwright, S. E..	Leadville .....	Lake	Male, J. T.....	Yampa .....	Northwestern
Krohn, H. N.....	Denver .....	Denver	Mann, Alfred .....	Denver .....	Denver
Krohn, M. J.....	Denver .....	Denver	Manns, Rudolph ...	Denver .....	Denver
Kruse, May B.....	Denver .....	Denver	Marbourg, E. M....	Colorado Springs....	El Paso
Kunitomo, N. ....	Denver .....	Denver	Markley, Arthur J..	Denver .....	Denver
Lahmer, I. B.....	Walsenburg .....	Huerfano	Marmaduke, C. V....	Pueblo .....	Pueblo
Lamberton, Robt. E..	Denver .....	Denver	Marshak, M. I.....	Edgewater .....	Denver
Lamme, J. M.....	La Veta .....	Huerfano	*Martin, Herman H..	Denver .....	Denver
Lamme, S. J.....	La Veta .....	Huerfano	Martin, W. F.....	Colorado Springs....	El Paso
LaMoure, H. A....	Pueblo .....	Pueblo	Mathews, P. G.....	Walsenburg .....	Huerfano
Lane, Harold C....	Denver .....	Denver	Matlack, J. A.....	Longmont .....	Boulder
Langdon, G. W....	Salida .....	Chaffee	Mathews, B. H....	Denver .....	Denver
Larimer, G. W....	Salida .....	Chaffee	Maxwell, J. G.....	Cañon City .....	Fremont
LaRue, C. L.....	Boulder .....	Boulder	Mayhew, D. P.....	Colorado Springs....	El Paso
Lassen, Fritz .....	Pueblo .....	Pueblo	Maynard, C. W....	Pueblo .....	Pueblo
			McBride, W. L....	Seibert .....	Kit Carson



Name.	Postoffice.	Constituent Society.	Name.	Postoffice.	Constituent Society.
McCarroll, James	Denver	Denver	Morgan, J. W.	Denver	Denver
McCartney, F. M.	Denver	Denver	Morian, C. H.	Denver	Denver
McCarty, D. W.	Berthoud	Larimer	Morning, J. F.	Denver	Denver
McCaw, J. A.	Denver	Denver	Morrill, E. L.	Ft. Collins	Larimer
McClanahan, A. C.	Delta	Delta	Morrish, R. W.	Ft. Collins	Larimer
McClanahan, Z. H.	Colorado Springs	El Paso	Morrison, C. S.	Colorado Springs	El Paso
McCleary, E. O.	Ordway	Unattached	Morrison, R. G.	Denver	Denver
McClure, Finla	Salida	Chaffee	Morse, C. E.	Alamosa	San Luis Valley
McClure, C. O.	Starkville	Las Animas	Mortimer, J. L.	Denver	Denver
McConnell, J. F.	Colorado Springs	El Paso	Morrow, E. L.	Oak Creek	Northwestern
McCorkle, H. B.	Colorado Springs	El Paso	Moses, H. C.	Colorado Springs	El Paso
McDonald, A. J.	Leadville	Lake	Moyer, E. M.	Denver	Denver
McDonald, F. J.	Leadville	Lake	Mugrage, E. R.	Denver	Denver
McDonald, R. J.	Leadville	Lake	Mullin, W. V.	Colorado Springs	El Paso
McDonnell, J. J.	Pueblo	Pueblo	Murphy, P. A.	Denver	Denver
McEachern, C. G.	Denver	Denver	Myers, J. T.	Hotchkiss	Delta
McFadden, J. G.	Loveland	Larimer	Naugle, J. E.	Sterling	Northeast
McFadzean, J.	Del Norte	San Luis Valley	Needham, Chas. N.	Denver	Denver
McGee, R. P.	Pittsburg, Pa.	Denver	Needles, J. W.	Pueblo	Pueblo
McGraw, H. R.	Denver	Denver	Neep, E. R.	Colorado Springs	El Paso
McGugan, A.	Denver	Denver	Neff, O. S.	Flagler	Kit Carson
McHugh, P. J.	Ft. Collins	Larimer	Nelson, G. E.	Windsor	Weld
McIntyre, T. A.	Cripple Creek	Teller	Netherton, E. W.	Greeley	Weld
McIssac, F. C.	Chattanooga, Tenn.	Northwestern	Neuhaus, G. E.	Denver	Denver
McKay, J. H.	Denver	Denver	Newell, G. E.	Buena Vista	Chaffee
McKeen, H. R.	Denver	Denver	Nifong, J. D.	Denver	Denver
McKelvey, S. R.	Denver	Denver	Noonan, G. M.	Delagua	Las Animas
McKenney, G. P.	Denver	Denver	Norton, D. O.	Ft. Collins	Larimer
McKenzie, C. D.	Denver	Denver	Nossaman, A. J.	Pagosa Springs	San Juan
McKeown, E. E.	Denver	Denver	Nutter, E. R.	Joes	Kit Carson
McKibbin, S.	Creede	San Luis Valley	O'Conner, J. W.	Denver	Denver
McKinnie, L. H.	Colorado Springs	El Paso	Ogilbee, H. M.	Manitou	El Paso
McKinnis, C.	Ft. Morgan	Morgan	Ogle, W. M.	Bowen	Las Animas
McLauthlin, C. A.	Denver	Denver	O'Halloran, R. C.	Silverton	San Juan
McLauthlin, H. W.	Denver	Denver	Olmstead, G. K.	Denver	Denver
McLean, A. M.	Leadville	Lake	Olson, D. G.	Keeta	Weld
McMichael, A. O.	Denver	Denver	Oppenheim, S. M.	Denver	Denver
McNaught, F. H.	Denver	Denver	Orendorff, Otis	Cañon City	Fremont
McNeill, F. A.	Rico	San Juan	Orr, C. L.	Alamosa	San Luis Valley
Meacham, J. W.	Denver	Denver	Osborne, C. K.	Starbuck, Wash.	Lake
Mead, Ella A.	Greeley	Weld	Packard, Geo. B.	Denver	Denver
Meador, Chas. N.	Denver	Denver	Packard, Geo. B., Jr.	Denver	Denver
Means, F. M.	Holyoke	Northeast	Packard, Robt. G.	Denver	Denver
Menkle, H. C.	Simla, India	Denver	Palmer, F. E.	Sterling	Northeast
Menser, Bert	Denver	Denver	Palmer, W. A.	Castle Rock	Denver
Metcalf, A. W.	Denver	Denver	Parker, H. M.	Hartman	Northeast
Middlekamp, M. S.	Pueblo	Pueblo	Parker, O. T.	Salida	Chaffee
Miel, Geo. W.	Denver	Denver	Parker, Thadd	Denver	Huerfano
Mierley, Ira C.	Denver	Denver	Passover, Lucy L.	Denver	Denver
Miles, Amy B.	Boulder	Boulder	Pate, C. E.	Denver	Denver
Miles, M. E.	Boulder	Boulder	Pattee, J. J.	Pueblo	Pueblo
Miller, Austin E.	Dwila	Delta	Patterson, J. A.	Colorado Springs	El Paso
Miller, C. L.	Swink	Otero	Patterson, W. O.	Pueblo	Pueblo
Miller, Eli A.	Denver	Denver	Peck, G. S.	Denver	Denver
Miller, J. K.	Greeley	Weld	Pecony, Jos. W.	Denver	Denver
Miller, L. A.	Colorado Springs	El Paso	Pennoch, V. R.	Longmont	Boulder
Miller, L. I.	Denver	Denver	Peppers, A. W.	Hudson	Weld
Miller, Samuel W.	Denver	Denver	Perilli, Giovanni	Denver	Denver
Mills, Charles W.	Colorado Springs	El Paso	Perkins, C. C.	Denver	Denver
Minner, M. G.	Denver	Denver	Perkins, J. M.	Denver	Denver
Minnig, Arnold	Denver	Denver	Perkins, I. B.	Denver	Denver
Mishkind, A. J.	Denver	Denver	Perrott, E. W., Jr.	Denver	Denver
Mitchell, Wm. C.	Denver	Denver	Pershing, C. L.	Denver	Denver
Moleen, G. A.	Denver	Denver	Pershing, H. T.	Denver	Denver
Monaghan, D. G.	Denver	Denver	Pestal, Joseph	Lamar	Prowers
Monismith, A. T.	Ft. Lupton	Weld	Peters, A. H.	Colorado Springs	El Paso
Monson, G. L.	Denver	Denver	Peterson, Edgar A.	Denver	Denver
Montgomery, F.	Eagle	Garfield	Phelps, E. M.	Basalt	Garfield
Moore, A. M.	Denver	Denver	Philpott, J. A.	Denver	Denver
Moore, Chas.	Colorado Springs	El Paso	Peirce, F. J.	Pueblo	Pueblo
Moore, F. R.	Florence	Fremont	Pitney, Orville	Cheraw	Otero
Moore, Edward	Colorado Springs	El Paso	Plumb, Carl W.	Grand Junction	Mesa
Morehouse, J. A.	Sterling	Northeast	Poley, C. W.	Boulder	Boulder
			Pollard, J. W.	Denver	Denver

Name.	Postoffice.	Constituent Society.	Name.	Postoffice.	Constituent Society.
Pollock, R. M.....	Rocky Ford .....	Otero	Shafer, Harry S....	Denver .....	Denver
Porter, H. K.....	Delta .....	Delta	Shaffer, E. G.....	Delta .....	Delta
Porter, R. B.....	Fruita .....	Mesa	Shands, H. R.....	Colorado Springs...	El Paso
Pothuisje, P. J....	Denver .....	Denver	Sharpley, W. H....	Denver .....	Denver
Powell, Cuthbert ...	Denver .....	Denver	Shea, R. M.....	Denver .....	Denver
Powers, Chas. A....	Denver .....	Denver	Sheller, W. O.....	Lamar .....	Prowers
Pratt, Elsie S.....	Denver .....	Denver	Shelton, E. K.....	Antonito....	San Luis Valley
Presnall, C. W.....	Trinidad .....	Las Animas	Shere, O. M.....	Denver .....	Denver
Prewitt, Francis E..	Denver .....	Denver	Shields, J. M.....	Denver .....	Denver
Price, Evelyn B....	Pueblo .....	Pueblo	Shipman, F. M....	Victor .....	Teller
Printz, Morris .....	Denver .....	Denver	Shippey, O. P.....	Saguache....	San Luis Valley
Purcell, James W..	Denver .....	Denver	Shivers, M. O.....	Colorado Springs...	El Paso
Queal, E. B.....	Boulder .....	Boulder	Shollenberger, C. F..	Denver .....	Denver
Rader, Wm. H.....	Colloran .....	Mesa	Shotwell, W. E....	Denver .....	Denver
Ragsdale, E. W....	La Junta .....	Otero	Shultz, W. M.....	Nederland .....	Fremont
Ramaley, Francis ..	Boulder .....	Boulder	Sickenberger, J. U..	Grand Junction .....	Mesa
Ramsey, R. T.....	Denver .....	Denver	Sidley, Frekerick K.	Denver .....	Denver
Raymond, E. T....	Wellington .....	Larimer	Sidwell, C. E.....	Longmont .....	Boulder
Reed, C. W.....	Grand Junction .....	Mesa	Simon, Saling .....	Denver .....	Denver
Reed, D. W.....	Saguache....	San Luis Valley	Singer, W. F.....	Pueblo .....	Pueblo
Reed, W. K.....	Boulder .....	Boulder	Skinner, M. G.....	Washington, D. C...	Denver
Reed, W. W.....	Boulder .....	Boulder	Sloan, W. W.....	Mt. Harris ....	Northwestern
Reid, E. W.....	Flagler .....	Kit Carson	Smith, A. E.....	Rifle .....	Denver
Replogle, B. F.....	Ft. Collins .....	Larimer	Smith, C. A.....	Monte Vista..	San Luis Valley
Rice, D. H.....	Colorado Springs...	El Paso	Smith, H. A.....	Delta .....	Delta
Rich, W. F.....	Pueblo .....	Pueblo	Smith, R. G.....	Denver .....	Denver
Richards, D. F....	Denver .....	Denver	Snair, W. L.....	Louisville .....	Boulder
Richie, L. T.....	Trinidad .....	Las Animas	Snedec, J. F.....	Pueblo .....	Pueblo
Richmond, C. E....	Colorado Springs...	El Paso	Soland, L. W.....	Alamosa....	San Luis Valley
Richmond, G. E....	Center.....	San Luis Valley	Spangleberger, M. A.	Denver .....	Denver
Rilance, Chas, D...	Denver .....	Denver	Spaulding, W. F...	Greeley .....	Weld
Ringle, C. A.....	Greeley .....	Weld	Spearman, F. E....	Rifle .....	Garfield
Robe, R. C.....	Pueblo .....	Pueblo	Spencer, F. R....	Boulder .....	Boulder
Roberts, J. C.....	Denver .....	Denver	Spicer, Chas. M...	Denver .....	Denver
Roberts, W.....	Denver .....	Denver	Spicer, O. W.....	Colorado Springs...	El Paso
Robertson, E. H...	Boulder .....	Boulder	Spitzer, W. M.....	Denver .....	Denver
Robbins, A. W....	Durango .....	San Juan	Spivak, C. D.....	Denver .....	Denver
Robinson, E. F....	Denver .....	Denver	Stahl, A. W.....	Denver .....	Denver
Robinson, G. W....	Trinidad .....	Las Animas	St. Clair, Chas. A.	Denver .....	Denver
Robinson, J. R....	Colorado Springs...	El Paso	Stains, Minnie E...	Colorado Springs...	El Paso
Robinson, L. S. B...	Ft. Collins .....	Larimer	Staunton, A. G....	Denver .....	Denver
Roe, John F.....	Denver .....	Denver	Steeves, Chas. P...	Denver .....	Denver
Roehrig, Karl F...	Denver .....	Denver	Steinberg, B. M...	Denver .....	Pueblo
Rogers, E. J. A....	Denver .....	Denver	Steinhardt, E. H...	Pueblo .....	Pueblo
Rogers, F. E.....	Denver .....	Denver	Stemen, W. E....	Denver .....	Denver
Rogers, J. S.....	Kiowa .....	Denver	Stephenson, F. B...	Denver .....	Denver
Rook, C. W.....	Julesburg .....	Northeast	Stevens, F. J.....	Colorado Springs...	El Paso
Root, M. R.....	Denver .....	Denver	Stevens, H. L.....	Denver .....	Denver
*Rothwell, E. J....	Denver .....	Denver	Stewart, F. M.....	Loveland .....	Larimer
Rothwell, A. M....	Denver .....	Denver	Stiles, F. N.....	Grand Junction .....	Mesa
Rothwell, P. D....	Denver .....	Denver	Stilwill, H. R....	Denver .....	Denver
Rothwell, Wm. J...	Denver .....	Denver	Stirling, Margaret B.	Boulder .....	Boulder
Rover, H. W.....	Denver .....	Denver	Stoddard, T. A....	Pueblo .....	Pueblo
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\*Deceased.

## NEWS NOTES.

(Continued from Page 322.)

Assembly and meeting of the secretaries of sections of the A. M. A.

Dr. William E. Stemen of Denver has announced the limitation of his practice to diseases of the rectum.

The librarian will appreciate receiving copies of the October issue of Colorado Medicine from those who may have extra copies or who do not wish to preserve their files.

Dr. F. W. E. Henkel has moved from Silverton to Rifle, where presumably he will be engaged in general practice. Dr. Henkel has been an extremely active and enthusiastic member of the San Juan Medical Society, and it is hoped he will continue his efforts for organization in his new location.

## DEATHS.

Dr. F. C. Kennelley of Denver succumbed to pneumonia on Sunday morning, December 5, having been ill six days. He was thirty-seven years old. He had practiced in Denver the past three years, the last two of which he limited his practice to pediatrics, and was rapidly becoming widely recognized as a leader in his specialty. Dr. Kennelley was born at Easton, Ill., and graduated in medicine in 1906 at the University of Illinois. He was licensed in Colorado in 1909, but spent several years seeking improvement in health before taking up active practice of his profession.

## Medical Societies

### COLORADO STATE BRANCH CLINICAL CONGRESS OF AMERICAN COLLEGE OF SURGEONS.

The clinics arranged for this meeting were given by Fellows of the College and other Denver physicians invited to assist therein. They were more largely diagnostic than operative and suggest the possibilities of Denver in the direction of graduate teaching.

November 26, 1920, 8:30 to 12.

**St. Joseph's Hospital:** Dr. C. E. Tennant, Sporotrichosis, Gall stones and multiple adhesions, associated with epigastric angina. Dr. Edward Dean, Radium treatment of uterine fibroid. Dr. C. B. Lyman, exhibition of patient, demonstrating plastic work on face and transplantation of skin within the mouth. Dr. O. S. Fowler, double fascial nephropexy. Dr. Leonard Freeman, large post-operative ventral hernia; operative repair, with transplantation of fascia lata. Dr. O. M. Shere, Osteomyelitis of the skull. Dr. S. B. Eichberg, Tonsillectomy—demonstration of La Force operation: (a) under local anesthesia; (b) under general anesthesia. Dr. Robert Levy, Nasopharyngeal myxofibroma; diagnosis; radical operation, demonstrating site of origin in accessory sinus.

**Children's Hospital:** Dr. S. Fosdick Jones, Congenital dislocation of hips (three cases), tuberculous osteitis of knee, old spiral fracture of femur, spastic paraplegia. Dr. G. B. Packard, Osteosarcoma, tuberculous disease of hip-joint, tuberculous disease of spine. Dr. T. E. Carmody, operations for double hare-lip and plastic on palate. Cases presented: Hare lip, plastic on palate, plastic surgery, radical frontals, papiloma of larynx, carcinoma of mandible, carcinoma of antrum, carcinoma of palate, carcinoma of jaw and face.

#### National Jewish Hospital for Consumptives:

Dr. H. J. Corper, Surgical therapy of pulmonary tuberculosis, demonstrations of experimental pneumothorax in tuberculosis. Dr. Henry Sewall, Localized spontaneous pneumothorax, exhibition of x-ray plates. Dr. S. Swezey, A case of anomalous position of the colon in a consumptive, demonstration by lantern slides. Dr. S. Simon, Demonstration of artificial pneumothorax. Dr. Robert Packard, A case of multiple joint tuberculosis.

**Denver City and County Hospital:** Dr. Wm. M. Spitzer, Suprapubic prostatectomy, perineal prostatectomy. Dr. John B. Davis, External and internal urethrotomy for stricture. Dr. T. M. Burns and Dr. C. A. Ferris, Gynecological clinic.

November 27th, 1920.

**Sanatorium of the Jewish Consumptives' Relief Society:** Dr. O. M. Shere, Appendectomy, post-operative adhesions and hernia. Drs. A. S. Tausig and Wm. N. Beggs, Medical aspects of two operative cases, presentation of the methods employed in the selection of tuberculous cases for operation. Dr. Philip Hillkowitz, Pathological aspects of basal metabolism, blood chemistry. Dr. I. D. Bronfin, Demonstration of pneumo-peritoneum. Dr. William Spitzer, Factor of safety in kidney tissue, demonstration of specimens. Dr. C. M. Spicer, Demonstration of tuberculosis of spine, with psoas abscess on side opposite lesion. Dr. C. D. Spivak, Heliotherapy: A visit with Rollier

at Leysin, Switzerland. Dr. M. I. Marshak, Demonstration of apparatus and methods used in the control of heliotherapy. Dr. T. E. Carmody, Tuberculoma of ventricular band, cauterization of epiglottis, injection of superior laryngeal nerve. Dr. M. D. Brown, Cyst of thyroid, extensive ulceration of epiglottis, extensive destruction of cords, epiglottis and drums, reconstructive.

**St. Luke's Hospital:** Dr. F. H. McNaught, Gall bladder and appendix operations. Dr. Oliver Lyons, Prostatectomy, radium treatment for bladder tumor (exhibition of cases), irrigation of pelvis of kidney for pyelitis. Dr. W. W. Grant, Demonstration of fracture cases. Dr. Melville Black, Two cataract operations. Dr. Matt R. Root, Demonstration of cases of fracture and appendicitis.

**Mercy Hospital:** Dr. T. E. Carmody, Frontal sinus disease, carcinoma, two cases. Dr. H. R. Stilwell, Cataract operation. Dr. C. B. Ingraham, Laparotomy for pelvic adhesions, inguinal hernia, two cases.

At the **afternoon scientific sessions**, to which all members of the medical profession were invited, on Friday, Dr. Franklin H. Martin of Chicago gave an address on "Organization for Better Surgery," and Dr. F. A. Besley of Chicago, on "Diagnosis and Treatment of Skull Fractures." On Saturday afternoon an address was given by Dr. M. S. Henderson of Rochester, Minn., on "Non-Union of the Humerus," and one by Mr. John G. Bowman of Chicago on "The Surgeon's Responsibility to the Public."

At the **public meeting** Friday evening at the Central Presbyterian church Mr. Thomas B. Stearns presided. Addresses were made by the Right Rev. Irving P. Johnson, Rev. Father David T. O'Dwyer and Rev. Rabbi W. S. Friedman on "Why the Church Is Interested in Medical Education for the Laity;" by Dr. Charles A. Powers, President of the American Society for the Control of Cancer, on "The Control of Cancer;" by Dr. F. A. Besley, Professor of Surgery, Northwestern University Medical School, on "How the People of Colorado Can Help the Medical Profession;" Dr. Franklin H. Martin, Secretary-General, American College of Surgeons, on "The Organization of the American College of Surgeons;" and by Mr. John G. Bowman, Director of the American College of Surgeons, on "The Standardization of Hospitals." There was also a luncheon Friday noon of the Denver Civic and Commercial Association which was addressed by Drs. Martin and Besley and Mr. Bowman.

#### SAN JUAN COUNTY.

The meeting of the **San Juan Medical Society** was held in the office of Dr. Robbins, October 11, 1920, and was called to order by Vice President A. W. Robbins at 7:30 p. m. Only a business meeting was held, as no papers were read nor clinical cases presented. One application for membership was received. As the present secretary, Dr. F. W. E. Henkel, is about to leave the San Juan he asked to be relieved of his office. Dr. John Chester Darling of Durango was appointed by the vice president to take his place until the next election of officers, which will be in January, 1921. Owing to unsettled weather conditions in the San Juan in January, no definite date was set. The following program committee was appointed: Dr. Lingenfelter and Dr. Davis. Papers are to be read by Drs. Robbins, Nossaman and Haggart. Meeting was adjourned at 8 p. m.

F. W. E. HENKEL, Reporter.



# *Colorado Medicine*

The Journal of the Colorado State  
Medical Society

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Editor

FRANK B. STEPHENSON, M. D.

Volume XVIII, January to December  
1921

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## Editorial Comment

### TEACHING CLINICS FOR COLORADO.

The real physician or the progressive surgeon, is not sent out from the medical school ready made and neatly labeled with his diploma, like canned goods from a factory. He must develop by his individual study through all the years of his active work; study and thought about his cases, study of his journals, attendance on his medical societies, talking with his fellows, and, whenever he has the opportunity, visiting and following the work in clinics that are open to him.

The man with the most remunerative practice as a consultant, goes away from it every year to see the work of others along his own line and in other branches of medicine. So important is this continued graduate study and clinical contact with active progressive workers in medicine, that no sacrifice of time, money or effort to obtain it is too great. And so impressed have leaders in the profession been with its importance, that much thought has been given to methods of carrying its benefit to all medical practitioners.

The plan of graduate study worked out and published some years ago in the Journal of the American Medical Association was of great benefit to certain groups that followed it out. Much time and thought were given to the scheme of graduate instruction that was laid out for the County Medical Societies in Colorado over a year ago. But it must be admitted that the thing that appeals most strongly to all practitioners of medicine is the opportunity to follow the work of a good teaching clinic. Such an opportunity can be relied on to arouse interest and draw attendance; and so to help the practitioner in his graduate development as nothing else can.

For the Colorado doctor, the advantages of the teaching clinic have been very expensive both in money and time. He must travel at least a thousand miles, often twice that far, to find what he seeks. For the young man who cannot command much cash, the money thus spent is a large item. For the older practitioner in established practice, the time consumed in travel is a serious obstacle.

For the student going to spend a year in some eastern medical center, the week spent in traveling is not very serious. But for the busy doctor, who can only snatch a week or two to

visit the clinics for graduate study, it is very burdensome and often prohibitive. It might be possible for Colorado to depend on the institutions of other states for the original training of its doctors; but it can never keep its whole medical profession up to the best standard without a teaching hospital of its own, with clinics available to its physicians whenever they find time to visit them.

The plan for the building of a state hospital, as a necessary condition for securing the gift to Colorado of \$850,000 offered by the Education Board of the Rockefeller Foundation, to improve medical education in this region, raises a hope that the doctor of Colorado, who wishes to do graduate study, will no longer be compelled to sacrifice so much time in traveling to and from the place where he can do it.

Such a hospital can be made a place for training specialists. The experience with the summer course on ophthalmology has shown that many are desirous of getting such training in Denver. But it must, above all, provide for short clinical courses that can be utilized by the general practitioners of Colorado, to get in touch with the latest methods and discoveries in medicine. Medical science and art are advancing by great strides, and it taxes the energies of the practitioner to keep up with them. Many improvements can be best, or only, understood by seeing them in actual use and application.

No one can be a thoroughly good doctor who cannot command and use facts and methods, that have not yet found their place in the standard text books. The medical profession is as forward-looking in Colorado as in any state in America. The people of Colorado have a right to as good medical service as the people anywhere. The chance to secure clinical opportunities, the thing most needed, for bringing the profession to the highest state of efficiency, is now open to us.

The doctors, who understand the greatness of this need and the opportunity to meet it, should take the lead in educating the people of the state as to the importance of affording every practitioner of medicine such clinical opportunities, which he must have if he is to give the best service to his patients. Then it will be not difficult to induce the voters to take the necessary steps to secure them, by seeing that their representatives in the state legislature understand the value of a state teaching hospital; both for efficient treating of conditions that require special services, and for making the gen-

eral medical profession of the state the best possible to rely upon in every medical emergency.

The passage of the appropriation for a psychopathic hospital, by a vote of more than three to one, showed that the voters of Colorado are not opposed to good medical service, if educated as to what is needed to secure it. They have shown confidence in the Board of Regents of the University as their agent for the expenditure of money for such a purpose. If made familiar with the facts regarding the value of a teaching hospital, no legislature would fail to provide for it, by meeting the conditions of the gift now offered for the improvement of medical teaching.

E. J.

## THE SHIBBOLETHS OF TUBERCULOSIS.

### A Review of the Book of Marcus Paterson.

The reviewer of this work has practiced medicine for more than thirty years, largely if not chiefly among tuberculous patients. His views may be erroneous but they are founded on reflection and experience. In his opinion the principles of tuberculosis treatment as maintained in "The Shibboleths" are supported both by scientific theory and clinical practice. The Shibboleths is a small volume of chapters—short, clear, snappy, dogmatic, practical, often paradoxical, concerning the treatment of pulmonary tuberculosis. The captions stigmatize chiefly prevailing errors of belief. The book is easy reading and should be understood by the intelligent layman, through whom, perhaps, the practicing physician may be led to study it. Nothing essentially new is to be found in the book under examination. Its teachings are founded wholly on the author's first work, very great work, "Auto-Inoculation in Pulmonary Tuberculosis", published in 1911.

There is much of detail in both these books with which the independent practitioner may well differ; thus, the student who believes in climate as an aid in the treatment of tuberculosis will be annoyed at the inadequate dogmatism displayed on the subject. Dr. Paterson presents a table of tuberculosis mortality for the United States issued by the Prudential Insurance Company. According to this table Colorado suffers from the second highest mortality among twenty-three states, nearly two deaths annually among one thousand of population! This figure obviously includes decedents from the swarms of the tuberculous who annually seek this climate for health's sake. There has never been a comprehensive statistical research into the ratio of deaths from tuberculosis developed in Colorado to those accruing in persons who sought this State because of the disease, to our shame be it said. These side issues are relatively unimportant.

The great discovery set forth and hammered in by Paterson, a discovery which has ever been put in practice more or less unconsciously by every successful worker among the tuberculous, has gone far to put the treatment of pulmonary tuberculosis on what may be termed a mechani-

cal basis; by which is meant the demonstration of the indissoluble bond between cause and effect. After all, the often discouragement suffered by both doctor and patient is due to the blow in the dark; they feel the dagger of effect, but can not see the causing hand that drives the weapon.

Let us specify the theorems on which Paterson bases his treatment of tuberculosis:

1 Pulmonary tuberculosis is not merely local disease, but a general disease with a local expression. It is the functional deterioration rather than the anatomical disintegration that makes the patient an invalid. A person may be a bread winner with well nigh normal capacity for work though his lungs show abundant signs of tuberculous lesions. On the contrary, another person may be thoroughly incapacitated and be in imminent danger of entering on a fatal course from pulmonary tuberculosis, when examination with the stethoscope is almost negative of morbid signs.

Therefore the anatomical condition of the lungs is relatively unimportant and frequent examinations with the stethoscope are to be deprecated for special reasons that will be noted later. In short, it is the function and not the form of the lungs that has practical importance. It may be noted in passing that, largely through the teachings of Sir James Mackenzie, this is exactly the viewpoint we have recently laboriously attained in regard to the diseased heart.

2. The problem of fundamental importance in clinical tuberculosis is to identify the agent which causes illness and leads to death. This agent is justifiably assumed to be the toxins secreted by the diseased foci and they work their harm solely by their poisonous effect on the active tissues of the body at large to which they are transported by the circulation.

The symptoms of tuberculosis depend upon the dissemination of tuberculous toxins from the seat of disease to the body at large and there is no doubt a quantitative relation between disease activity and the circulating toxins.

A simple and usually dependable evidence of tuberculous intoxication is rise of body temperature above normal as shown by a thermometer under the tongue.

3. As the prime agent in accelerating the circulation is muscular contraction, it follows that fever in tuberculosis should be combated by complete mental and physical rest in bed. Paterson insists, on occasion, on treatment by "complete immobilization" of the patient. There may be doctors, nurses and patients in the United States who understand and practice this method but the reviewer has not met them. It is of fundamental importance that the practitioner should become versed in the technique of immobilization. Every medical attendant upon consumptives must often have been astounded at the antipyretic power of bed-rest so-called; in refractory cases, at least, the constant horizontal posture, with inhibition of cough, talk and excitement should be tried.

4. As a rule the maximal body temperature falls to normal with rest, and this metabolic state should be preserved for a time, possibly



several weeks. But a patient will not get well or functionally efficient by this method alone. We must apply nature's biological method of cure. This consists in the chemical reaction of protoplasm to the insult offered by minimal amounts of tuberculous toxin. Such minimal amounts of toxin are injected into the circulation by causing the fever-free patient to enter on a course of physical exercise, beginning with minimal exertion which is periodically very gradually increased until, finally, after the lapse of a few months, the most strenuous and prolonged physical work may be carried on by the patient without detriment.

That is to say, the object of treatment is to gradually raise the resistance of the patient through his reaction to gradually increased amounts of toxins. Whenever, as frequently happens, the clinical chart shows a fever wave, the patient is returned to bed, but after sufficient rest he usually resumes work where it was left off.

Paterson summarizes his results obtained at Frimley during 1908. The average time spent by patients at the institution was three and one-half to four months. Over sixty percent of the patients were fit to work two to three years after their discharge. Of one hundred and forty-six patients thus in good health, eighty-five percent were indoor workers. He thinks there should be eighty percent of arrests in patients treated at the first breakdown. Many of these patients retain extensive signs of anatomical disorders; some may even continue to void tubercle bacilli in their sputa.

To sum up, the rational treatment of tuberculosis consists in an appropriate enforcement of rest and exercise. Rest saves life; exercise makes well.

The treatment of tuberculosis involves the application of infinite detail into which it is not possible here to enter.

The reviewer believes that he who best knows clinical tuberculosis will profit most from Paterson's publication. HENRY SEWALL.

#### STATE MEETING FOR 1921.

With the passing of the conventions incident to the introduction of the New Year, we are left to speculate upon the demands which are to be made upon us individually and collectively. One which should impress each member of the State Medical Society individually at this time is his indebtedness to the organized profession, and the demand which is made upon him for personal support.

The nourishment which best agrees with health and development of a state medical society is individual feeding through contributions to the scientific program, well seasoned and flavored with originality and personal observation and experience.

The next meeting will be held in Pueblo and, while in the latter half of the year, the time to volunteer papers is now.

It is especially desirable that all sections of the state be represented, and at least each constituent society. Why not select some member

of each county society as its scientific representative?

Applications for places on the scientific program should be made as early as possible, in order to avoid the omissions and consequent embarrassment so common to the last few days before the session; they should be addressed to the Committee or its Chairman, Dr. George A. Moleen, Mack Building, Denver.

If you are open to the reproach of disinterestedness in this obligation to your State Society, the time to seriously consider making amends is now. G. A. M.

#### A BILL FOR AN ACT PROVIDING FOR THE EXAMINATION OF PERSONS ALLEGED TO BE DEFECTIVE, ETC.

It has long been known by criminologists that a large proportion of criminals are mentally defective. Certainly there is something amiss with the average man who commits a crime and also gets caught. Thus it would be well for society, when it has caught its man, to find out whether the captive is mentally responsible for his acts. It is more than well that it should do this when the captive is a child; it is then imperative.

A bill at present before the State Legislature, drafted by Judge Ben B. Lindsey, provides that counties of the first and second class shall appoint psychopathic examiners to make examination of any person who is "alleged to be defective, delinquent, or dependent, or to have violated any laws of this state". The examiner is to be a graduate of a reputable university where he shall have specialized in psychology. He is to be appointed at a salary not to exceed three thousand dollars per annum. It is not intended that the examiners shall necessarily be physicians; they may be psychologists trained in the technique of the Binet tests.

Scrupulous and convulsive minds are protected by a clause in this bill providing that mental examination of a child shall not be compulsory when such examination is contrary to its parents' religious beliefs.

The passage of this bill would mark an epoch in the progress of law in Colorado, and would define a new period in which law associates itself with medicine. Law would then no longer be the petty process in which crimes are matched with punishments intended in some mysterious way to expiate them, but would be rather the worthier effort to ascertain the cause of crime and remedy it. C. S. B.

#### A BILL FOR AN ACT CONCERNING THE PROTECTION OF PUBLIC HEALTH AND MORALS, ETC.

Another bill sponsored by Judge Lindsey is one intended to provide redress to a person infected by another with venereal disease. Under the present law recourse is possible only to a criminal court, where the object is vengeance and not reparation.

The bill provides that the offended party may file a petition with the district attorney stating the name of the respondent. The district attorney

ney may then cite the respondent to appear in a court of chancery. "The court shall proceed with the hearing of such case as near as practicable and consistent with the purpose of this act, under the rules and practice in courts of equity."

On adequate evidence the court may assess the respondent with a sum equal to the cost of medical treatment, together with damage and loss accruing to the injured party.

Publicity in cases under this act is declared detrimental to public morals and "the court shall by its order forbid the same."

The motive in this bill is unquestionably worthy, though it seems doubtful whether such an act is workable. A physician can testify to the existence of venereal infection, but neither the physician nor the lawyer can tell whence it came. In the case of gonorrhea it is not possible to tell whether the infection is recent or of long standing, and what the plaintiff honestly believes to be a recent infection may in reality be a latent infection recently activated. Thus the difficulties in the just application of the law would be enormous.

The same objections, however, are stated to exist to the law as it now stands except that the present law offers the plaintiff no monetary consideration, which might in some cases be a motive for unwarranted prosecution.

Protection is afforded the respondent to some extent by the fact that proceedings can be instituted only with the approval of the district attorney, and by the fact that the respondent has a right to jury trial.

This bill should receive the earnest consideration of the medical profession, and their authentic judgment should be expressed as to whether or not it is workable. C. S. B.

#### **A BILL FOR AN ACT TO PREVENT THE SPREADING OR COMMUNICATING OF VENEREAL DISEASE.**

Dr. Minnie C. T. Love is introducing a venereal disease bill drafted along lines suggested by the United States Public Health Service.

The bill provides that it shall be unlawful for one person to infect another with venereal disease knowingly, wilfully, carelessly or maliciously.

Testimony proving recent treatment for venereal disease shall be deemed prima facie evidence that such person knows himself to be infected.

Violation of the act shall be deemed a misdemeanor, and shall be punished by a fine of not more than three hundred dollars or by imprisonment in the county jail for not more than ninety days. The fine provided for in this bill is punitive, and is not compensatory to the plaintiff. C. S. B.

**PAPERS FOR THE NEXT ANNUAL MEETING MAY BE SUBMITTED BY TITLE AND ABSTRACT AT ANY TIME TO DR. GEO. A. MOLEEN, CHAIRMAN, MACK BUILDING, DENVER, COLORADO.**

**IT IS IMPORTANT THAT THE PROGRAM COMMITTEE BE ADVISED EARLY OF PAPERS TO BE SUBMITTED FOR THE ANNUAL MEETING. AT LEAST SIGNIFY YOUR INTENTION TO READ A PAPER, GIVING THE TITLE.**

#### **THE CHOICE OF DELEGATES.**

Not only at the 1920 meeting of the Colorado State Medical Society, but at previous meetings as well, it has been the experience that at the time the House of Delegates was called to order there were many absentees, some of whom put in an appearance one, or even two days late, and others not at all. The result at the last meeting was that committee reports had to be passed and that some societies were not represented at all in the deliberations of the House. It is unfair to any county society that its chosen delegate should fail to represent it, and it is unfair to the State Society that its program should be upset through dereliction of delegates. Of course, a doctor above all professional men can not say eight or nine months in advance how he will be able to regulate his spare time or whether he will have any; and it is unfortunate that delegates can not be elected at a date closer to the time of meeting. At the same time, it is no doubt sometimes the case that at the time a delegate is elected he either knows that he will not be able to attend or that he probably will not; in that case he should feel it his duty to forego the honor of election by withdrawing his name in favor of one who feels reasonably sure that he can attend.

At the annual election of officers of the Denver society, this January, some twenty-three names were proposed from which nineteen delegates and alternates were to be chosen by ballot. Before the balloting began a wise member suggested that if any of those proposed felt that he could not attend the next annual meeting, he should withdraw his name. No name was withdrawn. Denver will no doubt be fully represented at Pueblo.

#### **COUNTY SOCIETY ELECTIONS.**

County secretaries are urged to send to the editor reports of the meetings at which 1921 elections are held; in that way each society will have the election on record in Colorado Medicine and the list of constituent societies carried regularly in the journal can be kept up-to-date. The time limit for the annual report to the state secretary is April 3. If a secretary is unfamiliar with his duties in this regard, he should read section 8, chapter xiii of the by-laws of the State Society, a copy of which should be in his files.

#### **IN HONOR OF DR. HUBERT WORK.**

At a recent meeting of the Medical Society of the City and County of Denver a proposal was made that that Society express in an appropriate manner its appreciation of Dr. Work, President-elect of the American Medical Association, and that that expression be in the form of a reception and banquet, to be given in Denver. A committee was appointed to perfect plans and report back, and in due time notice will be given through these columns of the result of the committee's work. In the meantime it is permitted to say that the event will likely take



place in the spring and that each county society in the state will be invited to have a representative present, preferably its secretary. This would be an appropriate time for a meeting of all county society secretaries in Denver and plans for the good of the state society could be appropriately discussed at that time. Details will be forthcoming.

PAPERS FOR THE NEXT ANNUAL MEETING MAY BE SUBMITTED BY TITLE AND ABSTRACT AT ANY TIME TO DR. GEO. A. MOLEEN, CHAIRMAN, MACK BUILDING, DENVER, COLORADO.

## *Original Articles*

### BLOOD TRANSFUSION.

G. B. PACKARD, JR., M.D., DENVER.

The first known successful blood transfusion to man was performed by Jean Denys, physician to Louis XIV. In 1667, he injected the blood of a lamb into the veins of a youth suffering from over-venesection and the patient recovered<sup>1</sup>. From then until the present day, with here and there a discouraged remission for a few years, the number of investigators has steadily swelled, while the operation has advanced from a most hazardous experiment to one of today's simplest procedures. Until modern times, however, it remained an extremely difficult operation, demanding the most delicate and painstaking technique and even in the best hands was often unsuccessful and not uncommonly fatal. The great strides in blood vessel surgery, Moss's<sup>2</sup> blood tests preceding transfusion, the simple indirect methods by Kimpton<sup>3</sup> and Von Ziemssen<sup>4</sup>, and lastly the addition of anti-coagulants by Hustin<sup>5</sup>, Agote<sup>6</sup> and Lewisohn<sup>7</sup> are the enormous advances of the present day that have made transfusion not only absolutely safe but also technically as simple as a salvarsan injection.

**Technique.** The present day methods are of four general classes: (1) the direct vessel to vessel anastomosis; (2) the syringe-cannula method of Lindeman<sup>8</sup> and its modification by Unger<sup>9</sup>; (3) the paraffined tube procedure of Kimpton, and (4) the sodium citrate transfusion<sup>7</sup>.

The direct transfusion, artery to vein or vein to vein with or without the interposition of cannulae has largely vanished. The necessity of time-consuming labor and prac-

ticed technique, with the frequent lack of success and the uncertainty as to the amount of blood transfused has sufficed to displace this time-honored operation for the more simple ones. The method of Hull<sup>10</sup>, however, is worthy of mention for its simplicity and sureness of accomplishment. Its greatest value is for emergency transfusion when anti-coagulants and ordinary apparatus are not obtainable. The donor's radial artery is exposed, divided and the proximal end freed for an inch and a half. The median basilic vein of the recipient is exposed for an inch and a small slit made in it large enough to admit the artery. The artery is then drawn through the incision and telescoped into the vein for an inch by means of a traction suture on a fine needle. The opening in the vein is further closed by a second suture. Pressure on the artery and vein is then removed and the blood allowed to flow till the donor feels faint. This is probably the simplest and easiest of all arterio-venous anastomoses.

In the syringe-cannula method of Lindeman<sup>8</sup>, special 14-gauge needles of a pattern designed to cause no injury to the intima are introduced into the vein of both donor and recipient. A succession of Record syringes is then rapidly filled at the donor's arm and in turn emptied at the recipient's. By using a large number of syringes, and with the help of an assistant at one needle and a nurse to keep the syringes washed, a large amount of blood can be transfused with a minimum amount of trauma. This method has been further modified by Unger<sup>9</sup> who uses a two-way stop-cock and only one syringe. Lindeman claimed for his method that it was the most simple, that the blood is out of the body the shortest length of time and passes through the minimum amount of foreign material, therefore causing the least change in the blood and consequently the fewest bad effects from the transfusion and the greatest benefit to the patient<sup>11</sup>. While without doubt this is an excellent method of blood transfusion, it demands not only the trained operator but a trained assistant of equal technical skill, and a second assistant or nurse who has been trained with the rest of the team.

The method used by Kimpton, Vincent<sup>12</sup>

and others has many followers. A 300 cc. paraffined tube of special design is filled by inserting the tip into the exposed vein of the donor, and then immediately emptied into the exposed vein of the recipient by moderate air pressure. The procedure is simple, the technique is soon mastered, the blood is unmodified, receives very little trauma and is seldom out of the veins more than eight or ten minutes. The disadvantages are (1) that the preoperative paraffining of the sterile tubes is a troublesome and difficult task, requiring more time than the operation itself and almost as much skill, and (2) that the vein of the recipient must usually be exposed and sacrificed and very often that of the donor as well. This is a good secondary method to fall back on when unmodified blood is preferred to citrated. Vincent<sup>12</sup> and Alton<sup>13</sup> describe methods of simplifying the preparation of the tubes.

The most widely used method today is that in which sodium citrate is used as an anti-coagulant. Although Neudorfer<sup>14</sup> suggested the use of sodium bicarbonate in 1860, and Hicks<sup>15</sup> tested sodium phosphate in 1869, both with the same idea of finding an atoxic anti-coagulant, no very practical work appeared until 1911, when Engelmann<sup>16</sup> published his work on herudin, demonstrating that .3 gm. could be used without toxic symptoms. Further results with herudin were reported by several American workers<sup>17</sup>, but their investigations have already been largely forgotten since Agote, Hustin, Weil<sup>18</sup> and Lewisohn published their works on sodium citrate as an anti-coagulant in 1915. All these observers showed that blood to which sodium citrate has been added may be kept out of the body for a considerable length of time without clotting and may then be injected into the veins of the patient with perfect safety. Lewisohn showed two very important points, (1) that 5 grams of chemically pure sodium citrate could be injected into the veins of a man without harm, and (2) that blood containing 0.2% sodium citrate will not clot. This made it possible to transfuse large amounts of blood by the sodium citrate method without approaching the toxic limit<sup>7</sup>. A great many types of apparatus have been reported in the literature

during the past two years. Most of them are based on a suction apparatus for the drawing of the blood and on air pressure for its injection. Robertson's<sup>19</sup> arrangement with a reversible suction tube is the best of the type. His apparatus is very practical and convenient. As a further modification of the sodium citrate method may be mentioned Abelman's procedure<sup>20</sup> using syringes and needles coated with citrate ointment.

However, no particular apparatus is necessary, and the original technique as described by Lewisohn<sup>7</sup> is about as good as any. The following procedure which differs little from Lewisohn's description is the writer's choice: Three percent sterile sodium citrate solution in distilled water is put into a wide-mouthed liter container in sufficient amount to make a 0.3% solution after the blood is added. That is, if it is desired to transfuse 500 cc. of blood, one uses 60 cc. of the 3% citrate; if 800 cc. then 90 cc. of the citrate, etc. I prefer a 0.3% solution of the citrate in the blood to a 0.2%, as clotting occurs on rare occasions in a 0.2%, and this extra margin of safety does not cause the slightest harm. Sixteen hundred cc. of blood may be given before 5 grams of sodium citrate is used. The donor's arm is then prepared with alcohol. A sterile tourniquet is applied to the upper arm just tight enough to prevent venous return but not to shut off the arterial supply. A blood pressure arm band maintained at the diastolic blood pressure is the ideal constriction, but has the disadvantage that it requires an additional assistant. Opening and closing the first several times or flicking the skin over the vein are often a help in making the veins of the elbow more prominent. By means of a fine cambric needle inserted transversely according to the method of Watson<sup>21</sup>, a large vein, usually the median basilic or the median cephalic, is transfixated to the skin, the needle passing through its upper segment. A drop of 1/2% novocain is injected into the skin just proximal to the transfixion needle and the skin cut with the point of a knife for not over 1 millimeter. Through this opening, with one hand holding the intestinal needle and thus steadying the vein, a 12 to 14 gauge needle is inserted



into the vein against the blood stream. By this procedure one seldom has difficulty in entering the vein with a large needle. The blood now flows in a steady stream into the receiving jar containing the calculated amount of citrate solution, where it is gently but constantly stirred with a glass rod to keep it thoroughly mixed. Every care must be taken at this stage to keep up a good flow and avoid any incipient changes toward coagulation before the blood reaches the citrate solution. The needle must be kept parallel with the vein, the tourniquet may be loosened or tightened, and the flow may be increased by the donor's alternately closing and opening his hand. When the desired amount of blood is obtained, the receiver is placed in a pan of warm water while the recipient's vein is being entered in a similar manner. The blood is then transferred gently to a glass container having an outlet and a rubber tube connection to the needle, and allowed to flow slowly into the recipient's vein by the force of gravity. Signs of an overloaded heart or an incompatible blood may be detected early if the rate of flow is kept slow.

Simplicity is the paramount advantage of this method. Other things being equal, the simplest method is the best. If one can but obtain chemically pure sodium citrate, the remaining apparatus may be found in the smallest hospital, and the technique is within the scope of most any medical man. According to most observers, the sodium citrate is not deleterious in any way. Though it stops coagulation in the container, it causes no lengthening of the coagulation time *in vivo*. On the contrary, the coagulation time is shortened<sup>22</sup> after citrate transfusions just as it is after transfusion of unmodified blood. Post-transfusion reactions, of which more will be said later, are more frequent after this method than after the others. That is the one objection to its use. I have not seen the reactions do any harm, though they are a discomfort to the patient and most annoying to the operator when occurring before the injection of the blood is completed. Though most observers can find no objection to the sodium citrate, a few cite the reactions as showing the toxicity of the citrate ion<sup>23</sup>, or the toxic effect of the cit-

rate on the blood platelets<sup>24</sup>, or the toxic changes in the blood caused by incipient stages of coagulation<sup>25</sup>. Lindeman was a particularly strong opponent of the citrate method. He concluded<sup>14</sup> that the sodium citrate is an inferior method because (1) of the high percentage of chills which he considers harmful to a patient; (2) a large amount can not be given, and (3) the toxic material in the citrated blood sensitizes the patient so that subsequent transfusions may be of actual danger. While Lindeman's arguments have been well worked out, the great majority of writers today consider the citrate method the best. Although the citrate method is simple, definite precautions must be observed or the blood will undergo changes outside of the body that will render it toxic. Apparent simplicity has often led to lack of care and consequent undesirable effects. Blood is a delicate tissue and must be handled accordingly. The chief consideration is to get the blood cleanly and quickly into the citrate solution so that coagulation changes which always begin the moment the blood leaves its containing vessel<sup>25</sup> may be stopped as soon as possible.

**Reactions.** Transfusion may be followed in one-half to two hours by a reaction which in its typical form consists of a temperature of 100 to 105 degrees with or without chill, malaise, headache, nausea and vomiting, and diarrhea. The reaction may vary from the slightest rise in temperature to the most severe racking chill. The fever is often accompanied by urticaria and may be followed by herpes on about the third day. These symptoms are transitory, seldom lasting over a few hours, the temperature returning to normal in three to twenty-four hours. Rarely the initial reaction is delayed as long as a day.

These typical and fairly common reactions are not to be confused with those due to the incompatible blood of the wrong donor, in which cases the resulting hemolysis causes violent symptoms and often death. In spite of a large amount of experimental work we are still very doubtful as to the cause of the ordinary reactions. We do know that they occur more frequently after the transfer of citrated blood than after that of unmodified blood. Because of the different stand-

ards of what constitutes a reaction, it is difficult to compare the statistics of different writers.

Bernheim<sup>26</sup> reports chills in 2% of his unmodified blood transfusion, and 22% in his citrated. Sydenstricker<sup>27</sup> gives the lowest figure of any for reactions in citrate transfusions, reporting one hundred cases with reaction in 17%. Hunt<sup>28</sup> reports 20.2% reactions with the citrate method at the Mayo clinic. Most observers find the figure higher. Meleney<sup>29</sup> reports 63.6%, and Drinker and Brittingham<sup>24</sup> over 60%, higher than their figure for the Vincent method. Unger<sup>30</sup> had only 10% reactions in a series with his method, and Lindeman<sup>11</sup> reports two hundred and fourteen consecutive cases without a chill. Though with different authors the figures are at very wide variance, the higher percentages are usually in the modified blood transfusion.

I have had about 20% reactions consisting of a temperature of 100° or over with or without chill following citrate transfusion. I regret that the figures on my unmodified blood transfusions, most of which were of the Vincent method, are not obtainable, but I do not believe the percentage over one-half the former. Possible causes for the reactions are slight hemolysis or agglutination of the red blood corpuscles not recognizable by the ordinary clinical tests<sup>8</sup>, incompatibility of the blood platelets<sup>28</sup>, the addition of foreign protein which may be split up by ferments or antibodies in the recipient's blood<sup>29</sup>, toxic changes in the blood due to the addition of a chemical<sup>24</sup>, toxic changes in the blood due to its remaining outside the body for a variable length of time, or to incipient coagulation changes<sup>25</sup>, trauma to the red blood corpuscles<sup>29</sup>, fungus growth in distilled water<sup>20</sup>, and lastly the citrate ion itself<sup>31</sup>. There are so many arguments for and against these various possibilities that there is not time here to discuss them. I am convinced, however, that the less the factors of the blood are altered, whether by trauma, time or chemicals, the fewer are the reactions.

**Selection of Donors.** Landsteiner<sup>32</sup> and Shattock<sup>33</sup> discovered independently in 1900 the isoagglutination of red blood corpuscles. Landsteiner divided all bloods into three

groups. Jansky<sup>34</sup> in 1907 divided all human bloods into four groups based on their isoagglutination powers. Moss's studies<sup>35</sup> have made transfusion a safe procedure. He demonstrated (1) as did Jansky that human beings may be divided into four groups according to the ability of their serum to cause isoagglutination and of their corpuscles to be isoagglutinated; (2) that isoagglutination may occur independently of iso-hemolysis, but that isohemolysis is always preceded or accompanied by isoagglutination; (3) that isoagglutination may always be demonstrated in vitro by suitable tests, and (4) that, therefore, hemolysis, the former commonest cause of death in transfusion, may practically always be avoided.

Blood groups are established during the first year of life and apparently follow the Mendelian law of heredity. They are as follows:

Group 1. Occurs in about 8%. Serum agglutinates no corpuscles. Its corpuscles are agglutinated by the serum of all other groups.

Group 2. Occurrence about 40%. Serum agglutinates the corpuscles of groups 1 and 3. Its corpuscles are agglutinated by the serums of groups 3 and 4.

Group 3. Occurrence about 10%. Serum agglutinates the corpuscles of groups 1 and 2. Its corpuscles are agglutinated by the serums of groups 2 and 4.

Group 4. Occurrence about 42%. Serum agglutinates corpuscles of all other groups. Its corpuscles are agglutinated by no serum.

There are two general methods for ascertaining the suitability of a donor's blood for the recipient, one comparing the unknown blood to stock bloods of known groups, the other by direct testing against each other of samples of the donor's and recipient's blood:

Group method<sup>36</sup>. In order to keep in stock sera of groups 2 and 3, blood is collected from previously tested donors under sterile precautions, centrifuged and the serum decanted off. To the serum may be added a preservative such as 0.25% cresol. The serum will preserve its agglutinating properties for at least one year. Methods involving use of dried serum<sup>37</sup> kept in a refrigerator or of powdered serum have no advan-



tage and the serum is very unreliable after a few months. To test the recipient or prospective donor, a drop of blood is collected from the ear or from the finger and is mixed immediately with ten drops of 1.5% sodium citrate solution in a small Widal test tube. This cell suspension represents the corpuscles to be tested, the amount of serum present being negligible. On an ordinary glass slide are then placed 2 drops of the group 2 and the group 3 serum at well separated points. To each of these is added an equal amount of the corpuscles to be tested and agglutination is looked for. It will usually be visible to the naked eye in three minutes if it is going to occur, but it is well to wait fifteen minutes before actually calling the reaction negative. In all cases it is safer to substantiate the gross test with the microscopic so as not to overlook small degrees of agglutination or to confuse the formation of rouleaux with true agglutination. A glance at the accompanying table will then quickly show to what group the tested blood belongs. In short, if both groups 2 and 3 sera cause agglutination, the blood is in the rare group 1; if agglutination occurs with neither serum, the blood belongs to group 4; if it occurs only with group 2 serum, the blood is in group 3; and conversely, if it occurs only with group 3 serum, we are testing a group 2 blood.

TABLE OF AGGLUTINATION.

		Serum—group			
		1	2	3	4
Corpuscles—group	1	..	+	+	+
	2	0	..	+	+
	3	0	+	..	+
	4	0	0	0	..

+denotes agglutination of cells by serum, 0 shows no agglutination.

Direct method. The principle of this test is exactly the same as the preceding<sup>36</sup>. The blood of the donor and that of the recipient are tested against each other in the following manner: About 2 cc. of blood are taken from the patient into a small test-tube, the clot allowed to settle and the serum drawn off. Two drops of blood are taken from the prospective donor into ten times the amount of 1.5% sodium citrate solution, which makes an excellent corpuscle suspension. On a glass slide or as a hanging drop

a mixture of one drop of each is made. Agglutination shows that the corpuscles of the donor would be agglutinated and possibly hemolyzed by the blood of the patient and is therefore absolutely unsuitable. A negative test, waiting fifteen minutes for safety, means the transfusion may be safely done. The reverse test of the donor's serum against the recipient's corpuscles is generally considered unnecessary<sup>34 40</sup>, as the donor's serum does not exist in sufficient strength in the recipient's vascular system to harm the latter's corpuscles. This direct method may be further simplified by more quickly obtaining serum. Two ways suggested are worthy of mention. Two drops of blood are collected on a glass slide and allowed to dry. The original volume is then made up by the addition of water, which lyses the blood, thus giving serum for all practical purposes<sup>38</sup>. The other method<sup>39</sup> consists in collecting a few drops of blood directly into a small amount of distilled water, which lyses the corpuscles and leaves a clear solution to act as serum.

By using one of the above methods practically all danger of incompatible bloods may be avoided, although there are a few disastrous cases<sup>41</sup> reported where the most careful tests, even when repeated after the transfusion for verification, were negative. Not all bloods which show incompatibility in vitro cause symptoms in vivo because agglutination is followed by hemolysis in only about 20% of the cases<sup>38</sup>. The serum of a given individual may or may not contain an isohemolysin, but if an isohemolysin is present, it acts in accordance with the laws governing the action of the isoagglutinins<sup>35</sup>. While repeated transfusions, especially when from the same donor, may cause severe reactions, it is pretty definitely settled that humans never change their group after it is once established. Group 4 donors may be used for all cases, as their corpuscles are agglutinated by no serum. The fact that group 4 serum agglutinates corpuscles of some other groups seems to have no clinical importance.

Healthy young adults make the best donors. Syphilis and malaria should be excluded by both history and blood examination. The blood group should always be as-

certained or the blood tested against that of the patient. In repeated transfusions, different donors should be used.

**Indications.** Transfusion has been used in a variety of conditions as a therapeutic measure. In some it has been of almost inestimable value, while in others it is of doubtful benefit. Dorrance<sup>42</sup> has succinctly stated that the indications may be practically summed up in the following manner: (1) to be used in any condition to correct a very severe anemia; or (2) to control quickly a lengthened coagulation time. It will be seen that the effect of transfusions in other conditions among the following is much less satisfactory.

(1) Hemorrhage. Transfusion is the ideal treatment for hemorrhage. In primary or traumatic hemorrhage it is without doubt a life-saving device of the greatest value and enables urgent operations to be performed that under ordinary conditions would be hopeless. This has been demonstrated beyond any doubt in the recent war.

In the severe hemorrhages from gastric ulcer its results are miraculous. As a rule the bleeding point should first be controlled or the two operations may go on at the same time. However, particularly in repeated or prolonged gastrointestinal hemorrhage, the addition of new blood usually stops the bleeding, either by shortening the coagulation time or changing the nature of the clot<sup>43</sup>. In the majority of the cases one transfusion will stop the bleeding. Then the strengthened patient is better able to stand laparotomy. Transfusion stops the oozing sometimes occurring from the gastrointestinal tract after operation. It is of doubtful value in the bleeding from cirrhosis of the liver, or from Banti's disease<sup>22</sup>. It will sometimes stop the bleeding from gastric cancer, though, of course, the value is only temporary. Cases of arrest of bleeding in typhoid ulcer<sup>46</sup> have been reported.

It is of great value in ectopic pregnancy, though the transfusion is better not begun until the bleeding vessel is secured. The same is true in postoperative hemorrhage from an unsecured vessel. It stops the general ooze occurring after operation in intensely jaundiced patients, but the bleeding may start again in forty-eight to seventy-

two hours when the biliary obstruction has not been relieved as in malignant disease<sup>4</sup>.

When is transfusion necessary in acute hemorrhage? It has been stated for instance that bleeding will stop in gastric ulcer or in ectopic pregnancy before death occurs, but this occasionally has been all too sadly disproved. Bernheim gives for his limit a blood pressure of 70mm. which he considers indication for immediate transfusion, believing the red count and hemoglobin reading of little importance. Robertson and Watson<sup>45</sup> in observations on wounded soldiers find a soldier with a blood pressure under 90mm. a poor subject for operation and believe that 70mm. demands immediate transfusion. DePage and Govaerts<sup>47</sup> from their experience state that if the red cells fall below 4,500,000 in the first three hours, or below 4,000,000 in the first eight hours, or below 3,500,000 in the first twelve hours, the patient will probably die unless transfusion is performed. Clinical symptoms play so large a part in deciding the necessity for transfusion that it is impossible to decide on any one scale and it is best always to transfuse in case of doubt. The use of saline, gum and glucose solutions as a substitute for blood transfusion in acute hemorrhage has been given an extensive trial in the recent war. It has been definitely shown that while these solutions are of great benefit in improving the blood pressure and the general condition of the patient, they are far inferior<sup>48</sup> to straight blood and obtain good results only in cases of moderate bleeding.

(2) Secondary Anemia. Secondary anemia per se may not be considered an indication for transfusion. However, when it is associated with other conditions, such as sepsis, general debility from wasting diseases, or low resistance, addition of blood may tide over a critical period or precipitate a turning point in the course of the disease. Depletions from slow chronic bleeding as in uterine or rectal conditions should never be allowed to go beyond the safety stage without transfusion.

(3) Blood Diseases. (a) Bleeding of the New Born: The slightest bleeding in the new born infant should be a signal for transfusion, as the course is usually very rapid<sup>44</sup>. Transfusion is an absolute specific<sup>49</sup> for this



highly fatal condition and is the only treatment except serum or defibrinated blood. The mother is used as donor, as the baby's blood is always in the same group for the first few months<sup>50</sup>. 100cc. of blood is sufficient and one injection is enough. It is most easily injected by way of the anterior fontanelle into the longitudinal sinus<sup>51</sup>. Injection into the fontanelle is not of the least danger if care is taken as to the depth and direction of the needle. For fear of too deep injection and consequently increased intracranial pressure, a few men prefer the highly technical procedure of entering a vein at the elbow.

(b) Hemophilia: Patients with this disease rarely reach adult life. Transfusion is practically the only treatment as in the last condition, but is a specific for the time being. A small amount of blood will effectually check the bleeding and lessen the anemia, but is no assurance against the next hemorrhage, though the coagulation time is shortened for a considerable period. Each hemophilic should have a list of donors to call upon when necessary. He might in this way live a life of normal duration. Ottenberg and Libman<sup>43</sup> recommend a prophylactic treatment consisting of small transfusions (25-50 cc.) at long intervals (1-3 months) which could easily be performed in the office with little fuss and might serve to keep the coagulation time at a normal level.

(c) Pernicious Anemia: Transfusion does not cure pernicious anemia; it is questioned whether it lengthens life<sup>52</sup>; but there is no other therapeutic measure that has its power or efficiency in the temporizing treatment of the disease. It acts in two ways, (1) by overcoming the symptoms of the anemia, and (2) by instituting a remission. In over one-half of the 326 cases collected by Anders<sup>53</sup> remissions were instituted by transfusions. Frequently when the first transfusion shows no marked effect, the second or third will bring on the desired changes. While it is disputed whether the remissions started by transfusions are longer than the spontaneous ones<sup>53</sup>, it is fairly definite that they are more pronounced, and it is probably true that the total number in the course of the disease may be increased. While the results

in the early stages of the disease are promising and the intervals between the relapses rather long, the intervals become shorter and shorter with the progress of the disease, and the efficiency of blood transfusion, even if used frequently, decreases rapidly. In spite of any method of treatment, the vast majority of cases succumb in two years<sup>46</sup>. These statements sound pessimistic, but when we consider the immediate effects on the state of mind of the patient and his family, it seems that he should receive the benefit of the trial.

The majority of patients, except those in extremis, will receive immediate benefit from transfusion, and even in those cases whose hemoglobin is below 20%, transfusion offers not only the possibility of averting death but even of initiating a remission. Transfusion seems to give better and more constant remissions than any other form of treatment<sup>52</sup>. Though an untreated case may parallel this improvement, yet with transfusion there is more likely to be a consistent temporary improvement and the patient is more comfortable while alive. Acute rapid cases are little affected by any treatment. Slow chronic cases early in the disease and those which have previously had spontaneous remission offer the best chance of improvement after transfusion<sup>54</sup>. Small amounts (400 to 600cc.) repeated every 7 to 10 days until remission commences give the best results. Massive transfusion seems to offer no advantage, as it is not the temporary filling up but the institution of a remission that causes the benefit. The same procedure is repeated when the next relapse has set in. Reactions are more frequent<sup>58</sup> in these patients, and the same donor used repeatedly may give increasingly severe reactions<sup>57</sup>. The presence or absence of reaction, however, seems to have no bearing on the benefit later obtained.

(d) Purpura Hemorrhagica: Transfusion is not as effective in purpura hemorrhagica as in hemophilia, but it is often helpful in stopping bleeding. No cures are permanent.

(e) Lymphatic Leukemia: Transfusion has no effect on the course of the disease. Its only benefit is to act temporarily as a supportive measure, and in some cases the temporary short improvement seems to be

followed by an exacerbation of the disease<sup>46</sup>.

(4) Shock: In surgical shock, alone, transfusion is not indicated. It is very doubtful if it is as valuable as normal saline and adrenalin<sup>42</sup>. Wonderful results have been obtained in the treatment of shock accompanied by hemorrhage, even though the latter is small in amount. Loss of blood intensifies to a very great degree the amount of shock produced by traumatism, and in many cases the control of the bleeding or the prevention of its effects will decide the immediate issue. In these cases, when saline seems ineffective, transfusion is of tremendous value<sup>44</sup>. This has been best demonstrated in the recent war. An hour's heat, a dose of morphine and a transfusion of blood has prepared many a patient to withstand an operation when otherwise he would either have died from shock or been withheld from the operating room until the time for operation was past.

(5) General Debility: Transfusion is a wonderful bracer in general debility, especially when the hemoglobin and red count are low. It has given good results in the malnutrition of infants. As a preoperative measure in patients in a general debilitated condition, nothing can compare with transfusion. Every patient who is a questionable risk on account of a general run-down condition should receive the benefit of transfusion before risking a large operation. The effect of transfusion after severe operative measures is marvelous. When possible, a donor should be secured beforehand to be used if necessary after the patient returns to his room. Or later in the weakened condition of convalescence, an extra supply of blood may change the whole course of progress.

(6) Sepsis—In general it may be said that in acute forms of sepsis transfusion is a perfectly useless procedure<sup>49</sup>. At least it may be said that the results are not encouraging. Normal blood usually has less bactericidal power than the blood of the infected patient<sup>43</sup>. However, it does no harm, and the blood of donors actively immunized against a given organism may have a specific effect. Cases have been reported of remarkable cures with the use of immunized blood in typhoid fever, malignant measles<sup>55</sup> and sep-

ticemia<sup>56</sup> following a point of local sepsis. Such cases are the rare exception and not the rule, however.

Transfusion in prolonged or chronic infections, on the other hand, is more likely to be satisfactory. This for two reasons. First, in increasing the patient's vitality, when there may be anemia, debility, malaise and poor nutrition, transfusion may add just enough resistance to turn the tide and overcome the infection. Second, in adding antibodies to combat the toxins or bacteria, the necessary help may be furnished. This latter can only be done by using immunized blood. Several successful cases have been reported<sup>57</sup>, especially in chronic staphylococcus septicemia<sup>58 59 43</sup>, by using repeated small doses of blood from immunized donors. Wright<sup>60</sup> has a method of immunizing blood after removal from the donor, but has not tried it out extensively as yet. Streptococcus infections give less satisfactory results. Temporary improvement in streptococcus endocarditis is followed by the usual course of the disease<sup>61</sup>.

(7) Toxemia: As a general rule, transfusion has no marked value in toxemia. Cases have been reported of cures in acute poisoning<sup>62</sup>, particularly from illuminating gas, with massive transfusion preceded by venesection, also of relief from the toxemia of nephritis<sup>62</sup> by the same method.

**Dosage.** A donor can with safety supply one-fourth of his blood volume<sup>30</sup>. It is not advisable to advocate large transfusions except following acute and profuse hemorrhage, as the increased volume may overstrain the heart and even cause death. In severe primary hemorrhage, 800 to 1,000 cc. will usually tide the patient over the crisis. In most other conditions, transfusions of 500 to 700 cc. are as effectual as larger ones. 80 to 150 cc. is the dose for infants.

**Dangers.** Dangers of transfusion are (1) hypertransfusion, (2) embolus, and (3) hemolysis.

Hypertransfusion from the standpoint of the patient causes acute dilatation of the heart with pulmonary edema. Signs of this condition are precordial distress, headache, backache, pain in the legs and in particular a short, sharp cough. Unger<sup>30</sup> says one should never transfuse more than 200 cc.



after the first cough. He disregarded this sign once and the patient died of pulmonary edema. The donor shows the effects of over-loss of blood by increased pulse and respiration with yawning and later pallor and sweating. These signs may sometimes occur early in a nervous donor who has not given blood before and they may pass off shortly.

Embolus may occur either from clot or introduction of air. Ordinary care should avoid either.

Hemolysis was formerly the great danger of blood transfusion and its occasional occurrence was considered an unavoidable calamity that must happen once in so often. It was avoided only by stopping transfusion when the first symptoms appear when frequently it may be too late. This accident was probably the most important reason for the discredit into which transfusion fell before the discovery of blood groups and laboratory tests for blood compatibility. With very rare exceptions, and possibly without any exception, hemolysis in vivo may be avoided by careful testing the patient's against the donor's blood as above described. The all-important point is not to inject into the patient's circulation blood corpuscles that are agglutinable or hemolyzable by the patient's serum. The symptoms<sup>4</sup> of incompatibility appear early, before 50 or 100 cc. are given. They consist of respiratory distress, perhaps pain in the back or precordium, also dilatation of the pupils, sweating and restlessness, and then abdominal pain. If transfusion is continued, the face becomes dusky, the pulse weak and rapid, and the skin cold and clammy. The patient may suddenly die. If the transfusion is stopped, there is in fifteen to thirty minutes a chill followed by a fever of 103 to 105 degrees, and hemoglobinuria. Death is usually the result unless transfusion is stopped under 100 cc. If for any reason the preliminary tests are faulty, transfusion should be stopped at the very first appearance of suspicious symptoms.

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## ACUTE LOBAR PNEUMONIA; TREATMENT.\*

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Lobar Pneumonia, or Pneumococcic Infection, is an acute infectious disease characterized anatomically by bacteremia, toxemia, and a local inflammation in the lung progressing to consolidation. The term, pneumococcic infection, is preferable to lobar pneumonia chiefly for the reason that the inflammatory lesion in the lung may be the smallest focus of the pneumococcic infection in the body, and because the lung involvement has not much to do with the severity of the illness of the patient; bear in mind, the local lesions in the lung are accountable for some, but not for all of the patient's symptoms; that the patient ill with pneumonia is suffering from a general pneumococcic infection; that other organs of the body may harbor morbid lesions as well marked as the local pulmonary lesion.

The severity of a given case depends upon the virulence of the infecting organism and the resistance offered by the patient. The extent of the local lesions, or foci of infection, be they in the lung or elsewhere, bears no necessary relation to the severity of the general symptoms, which on the contrary are expressions of a general toxemia.

The mortality varies between twenty and forty percent the world over, depending upon the virulence of the infection and the resistance of the individual. In the majority of cases death results directly from the toxemia, but in a few cases to this is added an unusual embarrassment of the heart, induced not only by the toxemia, but by the mechanical obstruction in the pulmonary circulation, or heart clot; and from clinical observations I doubt very much that high altitude, i. e. rarefaction of the atmosphere, the

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great bugaboo of pneumonia in this section, ever is responsible for inefficient oxygenation, or that it ever increases the mortality of the disease. Pneumonia being a distinctly infectious disease, infection being usually acquired by inhalation, it is evident that it is the duty of the physician to exercise prophylactic measures. Such preventive measures deal with the destruction of the pneumococcus, the protection of the individual from invasion, and rendering the individual resistant to attack. The first measure may be gained by isolation of the patient and destruction of all discharges that come from the case. The second measure, protecting the individual from invasion, is often difficult or impossible. Under the third measure Rosenow reports very good results in developing a passive immunity to the infection by vaccination with pneumococcic antigen and mixed pneumococcic vaccines, as it is conceded that in unusual cases the pneumonic process is set up by micro-organisms other than the pneumococcus, such as Friedländer's pneumobacillus, influenza bacillus, streptococcus, and other micrococci.

**General Management:** After examining the patient carefully, with his surroundings, if it is desirable to move him to a hospital, do so at once; do not delay twenty-four hours to see if the disease progresses, you may rest assured it will; and one of the chief contributing causes of the higher mortality in hospital as against private practice cases is the transporting of patients after the disease has progressed twenty-four hours.

The almost universal belief on the part of the laity that pneumonia is due to a cold has led to the fatal custom of smothering and roasting these patients. Place the patient in as large a room as possible with plenty of fresh air and sunshine, keeping the room temperature comfortably cool; keep him quiet, and require absolute rest in bed; apply an ordinary cotton jacket covering the entire chest; allow no visitors; conserve all the patient's energy possible, as you may be sure it will be needed shortly.

The second of importance in hygienic measures is feeding. Keep the digestive functions active by giving easily digested

liquids or semi-liquids at frequent intervals, and in sufficient quantity and quality to furnish about eighteen hundred calories per twenty-four hours; and of the foods I prefer gruels made from rice, cornmeal, oatmeal, barley; animal broths; cream and water equal parts; albumen water, and milk, in the order of their listing; or a mixed diet, of all.

**Treatment:** The highest function of the physician is to relieve human suffering, but the pneumonia patient should not be merely drugged; he should be cared for, carefully watched, some cases requiring almost constant attendance.

With the onset of fever, pain, and excited circulation, the physician is brought face to face with problems which have taxed the discovering powers of physicians for centuries. I do not know of any one successful treatment of pneumonia; the treatment should be planned largely with consideration for the age and condition of the patient. The free drinking of water, with the occasional use of alkaline diuretics, and laxatives may be resorted to for the promotion of elimination.

Fever cures disease, and is one of Nature's most dependable remedies; and I state emphatically, do not combat Nature. The so-called antipyretic remedies are not only not advantageous, but often positively harmful. Hydrotherapy, while less harmful, is rarely helpful and well borne, but an ice cap to the head relieves headaches, promotes sleep, and lessens the delirium. In the early stages of the disease pain may be relieved by strapping the chest, by Dover's powders if the cough is severe, or lastly by morphine given in small doses hypodermatically.

I have used aconite, veratrum viride, subcutaneous injections of lobelia (the latter only in a few cases) in the early stages of pneumonia with no apparent results, and I doubt if vascular or cardiac sedatives are ever indicated.

Petresco claims a mortality of less than two percent by his treatment with digitalis leaves in large doses, and many others report low mortalities with various specific remedies, so that one is forced to the conclusion that as yet no specific remedy has been found. I have observed apparently good re-

sults from completely digitalizing the patient in the early stages of pneumonia. This is easily accomplished by administering the tincture in dosage of one-third minim per pound of body weight, reducing the dose one-half every six hours, using in all from a dram and one-half to two drams within twenty-four hours.

Perchance whatever merit Petresco's treatment had is due to this; or did these cases belong to the group of sixty percent of recoveries under observance of the motto, "Let the Patient Get Well"?

Serum therapy has its enthusiastic supporters, with reports of low mortalities. I have used it with apparently very good results in some cases, but I believe it has been, so far, a disappointment to the profession in general.

The effect of whatever drug administered should be watched very closely, as the indiscriminate use of a single remedy for twelve hours will sometimes do more harm to the patient than will the disease.

The modes of death are, first, toxemia with vasomotor paresis; second, mechanical interference with the pulmonary circulation and respiration. The toxemia has been combated for years by various methods, such as the old form of blood letting used in George Washington's last illness, and, in later years, the various intravenous medications, or solutions. Do not use cardiac stimulants until necessary; be a watchman as well as a therapist and know when that necessity arises; the proposition as to the circulation is not "It must be stimulated", but "Does it really need stimulation?" Someone has said if the line of blood pressure drops in millimeters of mercury below the pulse rate per minute, or if the pulse exceeds one hundred and thirty per minute, it is a danger signal. As a first cardiac stimulant, alcohol in small doses does admirably, and may be given early, especially to drunkards. In case of rapid pulse with a lowering blood pressure, use digitalin hypodermatically; not rarely the placing of an ice bag over the pericardium, when the action of the heart is too rapid, will not only greatly improve its action, but apparently increase the favorable effect of the digitalin.

Large doses of camphor in oil given sub-

cutaneously are advocated by some; it raises the blood pressure slightly, though I doubt the cardiac stimulating qualities usually attributed to it.

Vasomotor paresis with dilatation of the splanchnic system may be met with: adrenalin, pituitrin, caffeine, or normal salt solution, given intravenously, may be used.

I have used the various pulmonary anti-septic methods of treatment with no apparent beneficial results.

Beginning cyanosis, or a pulse-respiration ratio of one to two, or one to one and one-half, is a signal for respiratory stimulants, of which atropine, used judiciously, not only is an excellent respiratory stimulant, but equalizes the circulation in this stage of collapse.

The use of expectorants in pneumonia is, in a great majority of cases, entirely useless, and often harmful. In the vast majority of cases the improvement which follows the use of compound expectorant mixtures lies in the control of the excessive cough by the sedative which is administered—the sedative does the work, and Dr. John Doe's prescription of squills, senega, ipecac, and iodides gets the credit. If in the stage of resolution some expectorant is needed to relieve a persistent bronchitis, ammonium iodide is probably the remedy of choice.

The patient, his friends, and the physician are all so anxious to see recovery certainly ensue that they are far too much inclined to resort to active medication when none is needed.

The complications should be treated as they arise. The indiscriminate local applications of poultices, plasters, Denver mud, etc., to the chest contribute not rarely to the frequency of empyema.

During convalescence iron and arsenic may be used as tonic measures to combat any tendency to anemia, and nux vomica as a general stimulant; but the chief remedies are fresh air and sunshine.

After all has been said we may recapitulate as follows:

1. Afford good hygiene and careful nursing.
2. Conserve and replenish the patient's energy.



3. Promote active elimination.
4. Treat the symptoms when they arise, not before.

### THE EARLY DIAGNOSIS OF CANCER.\*

LEONARD FREEMAN, M.D., DENVER.

Permit me to take as my text: "The time to cure cancer is before it begins."

I think it was Mr. Moynihan, the English surgeon, who called attention to the fact that our knowledge of disease is largely based upon such late symptoms that the trouble often is incurable before it is recognized. Our text-books are founded upon this late symptomatology. What is needed in medical literature is a work dealing, not with fully developed diseases, but with the conditions that precede and lead up to them. This is preventive, ideal medicine—the medicine of the future.

We have made some progress in this direction as regards cancer, and the beneficial effects already are manifest. It has been made plain to us, by years of bitter experience, that skin-cancer, especially of the face, often develops from pre-existing blemishes, such as warts and moles; that cancer of the breast can arise from an apparently innocent tumor; that cancer of the stomach may come from an old ulcer, or that of the gall-bladder from the irritation of stones.

We are beginning to see that a tumor of almost any kind in almost any place possesses a possible potential malignancy. It is true, of course, that certain situations, such as the face, the breast, the stomach, the rectum and the uterus, are more dangerous than others, and also that malignant changes are not apt to occur before middle life; but, nevertheless, any tumor, at any time, should be regarded with suspicion and removed, unless there is a good reason for its not being done.

The situation, then, is this: the early diagnosis of cancer is intimately associated with the recognition of various possibly precancerous conditions, such as tumors, blemishes, chronic irritations, inflammation and ulceration, of both external and internal parts—the skin, the lips, the tongue, the stomach, the gall-bladder, the rectum, the uterus, etc. There is, of course, something more in malignancy than the mere presence of these conditions—thousands have them while but few develop cancer, but these elusive causes are for future discovery.

Since we have begun to remove tumors and blemishes with greater frequency, the number of cancers is becoming correspondingly less, and especially is this true of the face, the breast and the uterus. We cannot now, and probably never will, succeed in doing away with all precancerous conditions, but in this direction lies the greatest hope of lessening the mortality of this terrible scourge, which is responsible for

the death of one out of every ten persons over forty years of age.

The surest way, then, to circumvent cancer is to eliminate precancerous conditions; but even if this opportunity has been neglected, treatment may yet accomplish much if applied sufficiently early—the earlier the better. Hence the prompt recognition of developing cancer is of the utmost importance.

Many blood and chemical tests have been devised with this end in view. Some of them seem to work well enough in advanced stages; but in the beginnings of the disease they have proved to be of little value and sometimes dangerously misleading. Likewise, we must not believe too implicitly that the presence of some other disease, such as syphilis, excludes the presence of cancer. In fact, it even is asserted that syphilis often is the forerunner of malignancy, especially about the mouth. Hence it should be emphasized that a positive Wassermann test by no means excludes cancer.

It may be said with reasonable accuracy that our means for an early diagnosis are but four—history, symptoms, physical examination, and microscopic investigation.

1. HISTORY. A family history of cancer was formerly regarded as of the greatest moment, but we now know that it is of minor importance. In fact, it is found in but ten to fifteen percent of cases, which is no more than can be accounted for by coincidence. Because a patient's grandmother and mother died of cancer is not a good reason why the patient herself should have it.

Age, as is well known, means much, but not everything; in fact, some malignant growths, such as sarcoma, habitually appear in the young. We do not expect to see cancer, however, until middle life, although it should never be forgotten that it may appear much earlier—even in infancy. To conclude that a breast-tumor, for instance, is not cancer because the patient is under forty would be unwarranted.

2. SYMPTOMS. Pain often has been unduly emphasized as a diagnostic sign. It actually means but little. It really is more in the nature of an accident than a symptom; because it depends upon the compromising of nerves by the growth, which may or may not occur, according to circumstances. And, in addition, many innocent troubles may be more painful than malignant growths. Carcinomata of the breast often are painless, as also may be those of the uterus, the colon and the stomach.

Sudden growth of a tumor, perhaps long stationary, may mean a beginning malignancy, as is seen in uterine myomata and ovarian cysts. A tendency to enlargement, ulceration, or any other change in blemishes of the skin is always suspicious, especially if it takes the form of hardening of the adjacent tissues. In fact, induration of the base of a tumor or an ulcer should always receive attention.

Hemorrhage from the uterus, after the menopause, is suggestive of cancer. Bleeding from the stomach, bladder or bowel is not of equal importance, because it may be due to so many other things. But in all these conditions, at

\*Read before the Medical Society of the City and County of Denver, November 16, 1920, as a part of a "Cancer Week" program.



least when middle life has been reached, it is up to the diagnostician to prove cancer does not exist, even if in doing so an anesthetic or even an exploratory operation is necessary.

Indigestion coming on in the latter half of life, without apparent cause, and especially if accompanied by loss of weight and energy, may mean cancer of the stomach. This is so true that there are those who even go so far as to recommend exploration in most instances—if malignancy is not found, some other surgical condition is apt to be, such as chronic inflammation of the appendix or gall-bladder. While this is doubtless an extreme view, it nevertheless serves to emphasize the importance of the question.

3. PHYSICAL EXAMINATION. By far too much reliance has been placed upon this in the past, it having been the custom to wait, before acting, until certain physical signs had appeared, which often meant that the disease had already passed beyond surgical aid. It is a great pity that more emphasis has not been placed upon the fact that when a cancer has reached a point where it easily can be recognized, it usually is too late to obtain a cure.

Hence an early diagnosis must be based upon little things. In the breast, for instance, the least fixation of a growth to the skin, manifested by slight pitting and dragging when the skin is lifted away from the tumor, is strongly indicative of cancer. The same may be said when movements of the affected breast upon the underlying chest are even slightly less free than upon the opposite side. On the other hand, thickening and discoloration of the skin, retraction of the nipple, ulceration, pain, and enlargement of the axillary lymphnodes are late signs and indicate that the golden opportunity for effective treatment already has been lost.

There are no reliable physical signs of beginning cancer of the stomach—by the time a tumor can be felt the condition is comparatively hopeless—but a good and well-interpreted x-ray picture is valuable and should never be neglected.

A certain amount of confirmatory evidence may be obtained from chemic and bacteriologic investigation of the stomach contents, provided these findings are not taken too seriously. Absence of free hydrochloric acid, for instance, does not always indicate cancer, and neither does the presence of a particular germ or chemical constituent.

Likewise, it is true of the uterus and ovaries, as well as other internal organs, that by the time physical evidence of malignancy can be detected, it is too late to accomplish much. Even cancer of the colon may cause little or no disturbance until it is well advanced. Increasing constipation, however, in those within the cancer age should excite suspicion and lead to the employment of the x-ray, which may throw light upon the trouble.

To await the formation of a palpable tumor in suspected internal cancer is to waste time and endanger life, and an exploratory operation under such conditions should need no apology.

Enlargements of the prostate, like uterine fibromata, may undergo insidious carcinomatous change, which affords a strong additional reason for early prostatectomy.

In the future surgeons doubtlessly will operate more frequently and sooner in cases of possible cancer, unless some less objectionable method of early diagnosis is discovered; because the danger of malignancy is so often greater than that of operation. Even the opinion of the laity is tending in this direction, as is indicated by the increasing demand for the removal of benign tumors from the breast, skin and other portions of the body.

4. MICROSCOPIC INVESTIGATION is usually positive evidence of the character of a growth. Unfortunately it is not always easy to remove material for this purpose; and recently a marked prejudice has arisen against the practice, because of a supposed danger of dissemination of the malignancy. In fact, Bloodgood and others have so strongly insisted upon this that the procedure almost has fallen into disuse. I always have thought that the danger attributed to this invaluable means of diagnosis has been exaggerated, and I am pleased to see that this opinion recently is gaining ground, through both observation and investigation.

Dissemination is known to take place through the lymphatics, but why should an incision increase the flow of material into these ducts? Rather, should it not deter such an invasion by opening the way in another direction? Do we not expect a flow of lymph into a recent wound instead of away from it? And, furthermore, are not the efferent lymphatics already blocked with cancer cells?

Bloodgood's argument is based upon statistics which seem to show that diagnostic incisions into a cancer are dangerous; but such statistics are always open to question on the ground of coincidence, if nothing else. They should not be accepted too hastily, especially as much proof exists to the contrary. Few of us, for instance, hesitate to curet the cavity of the uterus or its neck in cases of suspected malignancy; and in cancer of the alimentary tract, from the lips to the anus, injury sufficient to cause bleeding frequently occurs, although dissemination is at least no more frequent than elsewhere.

As to the value of such diagnostic incisions, there can be no question, and I do not hesitate to avail myself of them when they are urgently required; but it should be recognized that in the present state of our knowledge they should not be used unless necessary, and they should be followed by a radical operation as soon as possible.

In many instances it will be practicable for a pathologist to make an immediate report, from frozen sections, during the operation; although this hasty method is not always as reliable as could be desired, especially if the examination is negative. In most instances, however, a mere inspection of the cut surface of the tumor by a practiced eye is sufficient, without resort to the microscope.

There are those who think that the application of alcohol or tincture of iodine to the wound will prevent lymphatic absorption; and in the



absence of proof to the contrary, this is at least an admissible thing to do, as is also the use of pure carbolic acid or even the actual cautery, although one may be permitted to question the necessity for such radical measures.

To sum up the whole situation: At present our available means for the early diagnosis of cancer are so few, and its necessity so great, that we not only are justified in doing exploratory operations, but we should employ them more frequently than we do. Even if an occasional mistake is made, to the detriment of the surgeon's reputation, he should be willing to shoulder this responsibility for the sake of humanity. It is the case of "a few suffering for the good of the many". Also, it probably is true that diagnostic incisions into tumors are sometimes indicated, and, when followed by immediate operation, their possible danger perhaps is less than the benefit derived from them.

Beginning cancer frequently goes unrecognized merely because the diagnostician fails to consider it—"what we don't think of we often don't find"—hence it is of the utmost importance always to bear in mind the possibility of the presence of malignancy, particularly during the cancer age.

In the face of our present thorough professional training it is hardly worth while to mention the necessity for careful physical examination. Nothing should be taken for granted after middle life, especially in locations where cancer is prevalent, such as the mouth, the breast, the rectum and the uterus. If a sufficient number of examinations in these regions is slurred, a cancer is sure to be overlooked.

424 Metropolitan Building.

**IT IS IMPORTANT THAT THE PROGRAM COMMITTEE BE ADVISED EARLY OF PAPERS TO BE SUBMITTED FOR THE ANNUAL MEETING. AT LEAST SIGNIFY YOUR INTENTION TO READ A PAPER, GIVING THE TITLE.**

## News Notes

Dr. Charles S. Elder of Denver has resigned his position with the Denver Tramway Company and will henceforth devote all of his time to private work. He has taken offices in the Metropolitan Building.

Dr. C. E. Edson of Denver made a trip East the latter part of December to attend the Council of the American Climatological Society, in New York, and the Section for Physiologic Meteorology of the American Meteorological Society, in Chicago.

Dr. Traey R. Love of Denver, formerly with the Western Clinical Group, has announced that after January 1, 1921, he will be located in Room 832 Metropolitan Building.

Dr. F. N. Stiles of Grand Junction relinquished his practice in December to join the regular army medical corps, in which he has been given a commission as captain.

Dr. B. M. Steinberg of Denver has removed his offices from the Majestic Building to Suite 242-243-244 Metropolitan Building.

Dr. C. A. Ferris, who was operated upon for appendicitis in the early part of December, is again attending to practice.

Dr. Charles A. Powers of Denver has had conferred upon him the Order of Leopold, the highest gift of the King of Belgium, in honor of services rendered to humanity during the World war.

Dr. C. F. Andrew of Longmont sustained fracture of three ribs in an automobile accident in the latter part of December in which Mrs. Andrew was also injured, she suffering a fracture of the humerus.

At the Western Surgical Association annual

meeting held in Los Angeles, California, December 3 and 4, the following officers were elected: Dr. Charles D. Loekwood of Pasadena, president; Dr. Harry F. Ritehey of St. Paul, vice president; Dr. Walter S. Dennis of St. Paul, secretary. Executive committee: Dr. James S. Perey, San Diego; Dr. Roland Hill, St. Louis; Dr. A. F. Jonas, Omaha; Dr. W. T. Coughlin, St. Louis; Dr. Arthur Mann, Minneapolis. St. Louis was selected over Colorado Springs for the 1921 meeting.

At the annual session of the Southern Surgical Association held at Hot Springs, Virginia, December 14, 15 and 16, an entire evening session was given over to the subject of cancer, the program of which follows: The Control of Cancer (by invitation), C. A. Powers, Denver; Cancer Infection, A. J. Oehsner, Chicago; Cancer of the Uterus, John B. Deaver, Philadelphia; Radium in Carcinoma of the Uterus, William Kohlman, New Orleans; Electric Conductivity Observations on Malignant and Benign Tumors, With a Further Note on Operations for Cancer of the Large Intestine, George W. Crile, Cleveland; Carcinoma of the Kidney, Alexius McGlannan, Baltimore; Life Expectancy Following Radical Amputation for Cancer of the Breast, W. E. Sistrunk, Rochester.

Dr. A. W. Metcalf was re-elected Supreme Historian of the Chi Zeta Chi medical fraternity at the annual meeting held in St. Louis, December 29, 30 and 31.

An unusual array of county society reports adorns this issue. Boulder has a symposium on Thyroid Disturbances, giving diagnosis, medical, surgical and x-ray treatment. Pueblo tells of plans in which we are all interested.

A change has been made in the type used in the printing of Colorado Medicine. It will save about \$50.00 a month on what would be a forty-page journal if printed as in the past and will probably prevent a deficit at the end of the year. It is a trial only, but will probably be a permanent change unless an appreciable amount of adverse criticism is made to the editor or the publication committee. Such "10 pt." as appears in articles set up before the change was decided upon.

## DEATHS.

Dr. John H. Ferguson of Colorado Springs died on December 6, following a stroke of apoplexy. He had practiced in Colorado Springs for some twenty years. He was more than 60 years old.

Dr. William Drexler, a resident of Denver for thirty-four years, died December 22, following a gallbladder operation. He was a native of Hungary and came to Denver when he was ten years old.

## Medical Societies

### CITY AND COUNTY OF DENVER.

The regular meeting of the Medical Society of the City and County of Denver was held November 16th, 1920. The assembly hall was packed to its capacity. Dr. A. S. Taussig presided. Dr. Arvine L. Mazingo of Indianapolis read a paper on Surgical Treatment of Empyema by the Closed Method. He stated that empyema has been one of the most discussed surgical subjects during the entire war period because of its unusual prevalence and high mortality. The latter reported from various army camps during the winter of 1917-1918 averaged 30.2 per cent, and one camp reported a mortality of 84 per cent. By adopting what he called the "Closed Method," he healed 138 cases of empyema, forty-five of which were acute, and the mortality of this series was less than 2 per cent. For the last eighteen months Dr. Mazingo has been principally engaged in empyema work in the Walter Reed General Hospital, Washington, D. C., and at Camp Pike, Arkansas, and in a number of other camps. After a diagnostic puncture proves the presence of micro-organisms in the fluid of the pleural cavity, the operation by this method should be performed immediately. He demonstrated the technique and the "closed method" by two reels of moving pictures and



stated that it is practically never necessary to resort to a Schede or Estlander operation. These two reels of moving pictures, as well as a number of additional lantern slides illustrating the after treatment of the various empyemas, are the property of the Government and, according to Dr. Mazingo, they may be had gratis by any Medical School or Society by addressing the Curator, Army Medical Museum, Washington, D. C. The originator of this method stated that he had never seen a patient with empyema too sick to be operated by the closed method and that he had successfully operated at least ten cases which were considered nearly moribund when operated. The chief feature of this method may be summarized as follows:

1. A single, early minor operation with trocar-cannula introduced into the eighth space post-axillary, without danger of shock or collapse of the lung.
2. Intermittent removal of secretion and anti-septic treatment given through a small rubber tube with a bulb syringe.
3. Rapid partial sterilization with Dakin's solution followed by complete sterilization with a 2 per cent solution of formaldehyde in glycerine.
4. Maintenance of negative pressure in the empyemic cavity tending to its early obliteration.
5. One dressing which will last several days, and no skin irritation or constriction of the chest.
6. Rapid permanent cures with small scars and seldom any chest deformity.
7. A greatly lowered mortality rate.

Dr. Wyman Whittemore, who has charge of the empyema work at Massachusetts General Hospital, stated in a letter to Dr. Mazingo that he had operated between seventy and eighty cases of acute empyema by this method with but five deaths. Captain Manson, Chief of Surgical Service at Camp Dodge, Iowa, reported a series of twenty-three cases treated by the closed method, and in conclusion stated: "..... that the closed method thus described shortens the course of empyema, since it maintains constant negative pressure in the pleural cavity, prevents the collapse of the lung, promotes early adhesions between the lung and pleural cavity and prevents secondary infections which are so common after thoracotomies." The speaker mentioned a number of men who treated empyemas by his method with almost uniformly good results. He also mentioned some who proclaimed the method an absolute failure, but those cases, according to Dr. Mazingo, were treated by various modifications of his method, were extremely unfavorable cases, and a faulty technique was used. Dr. McNaught, the only one who discussed the paper, said that he had no personal experience with the method, but the results as stated by Dr. Mazingo were certainly gratifying. He felt, however, that more time would be necessary to follow up the cases treated by the closed method before adopting it as the only method.

Dr. Charles A. Powers read a paper on the Work of the American Society for the Control of Cancer. He briefly outlined the history of the Society and the way in which it conducts its work. He stated that there were already material gains in stamping out the terrible scourge, cancer, due to the work of the Society, and concluded with an appeal to the medical profession to continue its work in educating the people as to the early symptoms of cancer, as the only hope is in its early detection; and the medical profession is the only carrier of the message of hope. He was followed by Dr. Philip Hillkowitz, who spoke on

publicity on cancer among the laity. He presented a number of very interesting lantern slides that are shown to the laity and pointed out the various ways and means by which the laity is instructed as to the importance of all the symptoms that are suggestive of the possible existence of cancer.

Dr. Leonard Freeman read a very interesting paper on early diagnosis of Cancer. This paper will be published in full in Colorado Medicine, hence is not abstracted at this time.

L. V. T.

#### COLORADO OPHTHALMOLOGICAL.

The regular meeting of the Colorado Ophthalmological Society was held in Colorado Springs on October 23, 1920; Dr. J. A. Patterson presiding.

A. C. Magruder, Colorado Springs, presented two cases of cryptophthalmus, in a boy aged eight years and his sister, aged eleven years. The mother suffered from the same condition. There was no separation of the eyelids from the eyeballs and no movement of the eyeballs could be demonstrated. Discussed by E. M. Marbourg, W. H. Crisp and Melville Black.

A. C. Magruder, Colorado Springs, presented a case of peculiar refractive condition in the crystalline lens which produced the appearance of a large bloodvessel running across the middle of the lens. Discussed by Melville Black, J. M. Shields and W. H. Crisp.

A. C. Magruder, Colorado Springs, presented a case of lacerated injury of the eye in a man of twenty-three years. A secondary glaucoma had supervened, which was later treated by iridectomy. Discussed by Melville Black, W. C. Bane, W. H. Crisp and H. M. Thompson.

A. C. Magruder, Colorado Springs, presented a case of conjunctival inflammation which had left a condition rather closely resembling pterygium.

A. C. Magruder, Colorado Springs, presented a case of visual disturbance in an elderly woman. The condition had been diagnosed tentatively as optic atrophy, although the sudden onset left doubt as to this. Discussed by H. M. Thompson.

E. M. Marbourg, Colorado Springs, presented a girl of fourteen years who had a growth at the nasal margin of the cornea, the diagnosis of which lay between pigmented mole and melanosis. Discussed by Melville Black, W. H. Crisp, C. E. Walker and E. R. Neeper.

E. M. Marbourg, Colorado Springs, presented a man from whose right eye a piece of steel had been removed by Dr. Neeper with the giant magnet. Discussed by W. C. Bane, C. E. Walker and E. R. Neeper.

F. E. Wallace, Pueblo, presented a boy aged sixteen years who had had a prolonged inflammation of the right eye which was accompanied by an unusual group of heavy deposits on the posterior surface of the cornea and on the iris. Discussed by C. E. Walker, J. M. Shields, Melville Black, W. H. Crisp and J. A. Patterson.

E. R. Neeper, Colorado Springs, presented a woman, aged forty-eight years, who had an old area of choroiditis in the left eye and had recently had a transient disturbance of vision in the right eye. Discussed by H. M. Thompson, G. L. Strader and J. A. Patterson.

H. M. Thompson, Pueblo, presented a case of tuberculous chorioretinitis affecting the macular area. Early in 1918 the patient had shown apparent arrest of a lung tuberculosis which had been active for at least three years, with a streptococcic secondary infection. In September,



1919, there was an acute exacerbation of the lung condition. Discussed by Melville Black.

J. A. Patterson, Colorado Springs, presented a woman whose right eye had in 1917 been struck with a piece of kindling wood. The lens had become dislocated into the vitreous and the eye had since that time shown an increasing tendency to glaucomatous tension. Discussed by E. R. Neeper.

H. M. Thompson, Pueblo, reported a case of bilateral senile cataract in combination with typical congenital coloboma of each iris. There was also a nystagmus of the right eye, and left microphthalmus.

WM. H. CRISP,  
Secretary.

The regular meeting of the **Colorado Ophthalmological Society** was held in Denver on November 20, 1920, Dr. G. L. Strader presiding.

W. C. Bane, Denver, presented a woman whose left eye had become inflamed about the middle of October, 1920, although there was no pain until the first of November. There had recently been very severe pain in the eye and in the left frontal region. There was a disc-shaped haze in the substance of the cornea about 4 mm. in diameter, without loss of corneal epithelium. The case was a slightly atypical one of disciform keratitis. Discussed by G. F. Libby, Edward Jackson and G. L. Strader.

W. C. Bane, Denver, presented a boy, aged 16 years, who had come on account of blurring of the vision of the right eye. There was a marked retinitis extending very slightly beyond the right disc, which was considerably swollen. Recently a ring of deposit had been found on the anterior capsule of the lens, and there was haze in front of the macula. Later still the macular lesion consisted of an oval blue-gray membrane with notched edges. The case was allied to the condition known as chorioretinitis juxtapapillaris. Discussed by Edward Jackson and D. H. Coover.

W. C. Bane, Denver, presented a man, aged 63 years, whose right eye, injured in 1892 with cataract resulting, had recently developed a marked inflammation of the iris and ciliary body with a good deal of hypopyon. Discussed by A. C. Magruder and W. H. Crisp.

A. C. Magruder, Colorado Springs, presented a boy, aged 16 years, who had had a series of retinal hemorrhages in both eyes, beginning shortly after a number of boys had fallen across him in football, and later being particularly marked after "hooking" with a sled behind automobiles. There had been several attacks of tonsillitis. The case was considered to be possibly tuberculous in origin. Discussed by W. C. Finnoff.

A. C. Magruder, Colorado Springs, presented a man aged sixty years, formerly a rather heavy drinker, and with a number of local infections in the teeth, the antrum and the ethmoid and sphenoids, who had recently developed a pronounced neuroretinitis, with marked reduction of vision. Discussed by W. C. Bane, G. F. Libby, W. H. Crisp and Edward Jackson.

E. T. Boyd, Denver, presented a man aged fifty-three years, who had chronic simple glaucoma in both eyes, and on whom Dr. Boyd had performed cyclodialysis with excellent results.

E. T. Boyd, Denver, presented a man aged thirty-one years, who had burned his left eye with water glass with which he was engaged in sealing boxes. Water glass is strongly alkaline and is escharotic to the tissues of the eye, but burns by it do not commonly result very seriously.

E. T. Boyd, Denver, presented a man aged twenty-two years, who in a railroad collision had sustained an injury interfering with the normal drainage of the tears through the canaliculi. Dr. Boyd had done some operative work on the case and proposed some plastic operative work. Discussed by W. C. Finnoff, G. F. Libby and F. R. Spencer.

E. T. Boyd, Denver, presented a woman aged thirty-one years who for several years had suffered with a chronic dacryocystitis on the right side. A recent acute suppurative peridacryocystitis had been relieved by slitting of the canaliculus and the insertion of a lacrimal cannula, which the patient had been wearing nearly four months. Discussed by D. H. Coover.

E. T. Boyd, Denver, presented a woman aged sixty years who had come for refraction and had normal vision with correction, but in whose right eye had been found a delicate strand of persistent pupillary membrane extending across the pupil. Discussed by G. F. Libby, W. C. Finnoff and Edward Jackson.

H. R. Stilwill, Denver, presented a woman aged fifty years, who had come in March, 1920, complaining of the vision of the left eye having failed for the last two years. The right eye had diverged since childhood until about eighteen months previous to the consultation, but recently the right eye had become straight and the left eye turned out. There was a mass at the macula of the left eye, probably consisting of the fibrous remains of a hemorrhage produced by a severe blow above the eye. Discussed by D. H. Coover and Edward Jackson.

J. M. Shields, Denver, presented a man aged thirty-three years, whose right eye had been struck by a rivet on October 14, 1920, the lens becoming dislocated backward into the vitreous. On November 27, Dr. Black had attempted extraction of the lens. There had been much loss of vitreous, but the lens was successfully fished out with a loop, and the eye had gone along very well.

W. H. CRISP, Secretary.

#### PUEBLO CLINICAL AND PATHOLOGICAL.

The annual meeting of the **Pueblo Clinical and Pathological Society** was held September 8 in the dining room of the Union Depot Hotel. A banquet was served at 7 p. m. Twenty members were present.

This meeting is the only one during the year at which any business is transacted. The officers for the year 1921 were elected and are as follows: H. M. Thompson, president; Philip Work, vice president; J. F. Snedic, secretary-treasurer; F. E. Wallace, recorder; W. F. Rich, historian.

Numerous minor changes in the constitution and by-laws were discussed. Three new members were elected to membership as follows: W. S. Johnston, H. T. Low, J. W. Craighead.

The retiring president, D. E. Hoag, gave an address, which is epitomized below. The incoming president made a talk in which he plead for better work for the coming year and asked co-operation of each individual toward that end.

(Summary of address of President Hoag.)  
**The Evolution of Surgical Anesthesia, With Special Reference to Ether and Chloroform.**

Impossible to say when attempts were first made to relieve physical pain. Earliest use of a narcotic first mentioned by Homer. Pliny and Galen speak of the power of the mandragora to paralyze sensation and motion. In the third century a Chinese surgeon used a preparation of hemp. In the thirteenth century, Hugo de Lucca



used a certain oil. In 1540 Valerius Cordus discovered sulphuric ether; its anesthetic powers not recognized until three centuries later. In 1700 Shakespeare mentions a sedative drug. In 1843 James Braid inaugurated modern hypnotism. In 1842 Dr. Crawford Long of Georgia first used ether with the distinct object of producing insensibility to pain. In 1844 Dr. Horace Wells first used nitrous oxide. In 1846 Dr. William T. G. Morton gave the first public demonstration of the use of ether at Boston, Mass. All credit to be given America for the discovery and first use of ether for an anesthetic. In 1847 Flourens announced that chloroform had an anesthetic action analagous to ether, and in the same year it was used by Simpson. In 1858 Dr. John Snow attempted to place the administration of ether and chloroform upon a scientific basis.

### PUEBLO COUNTY.

The **Pueblo County Medical Society** held its first meeting of the new year in the society rooms, Tuesday, January 4, 1921. The main order of business was the election of officers for the ensuing year. The following were elected: President, F. E. Wallace; Secretary-Treasurer, Harold T. Low; Delegates to the State Society meeting, Philip Work and T. A. Stoddard; Alternates for the same, R. C. Robe and W. N. Streamer; Librarian, R. W. Corwin; Censor for three years, M. S. Middlecamp.

The new president was given authority to appoint a special committee to start the ball rolling for the State meeting next September. While this committee has not as yet been named it is rumored that a certain live wire that was such a factor in the success of the last meeting held in Pueblo, is slated for the position of chairman of this committee.

The program committee is bending every effort to give the Society a program very much worth while this year.

### LAKE COUNTY.

The regular monthly meeting of the **Lake County Medical Society** was held at the home of Dr. F. J. McDonald, Thursday evening, November 4, 1920, with a full attendance of members. Several interesting cases were reported by Drs. H. A. Calkins, J. A. Jeannotte and F. J. McDonald. A very unusual ununited fracture of the tibia and fibula was reported by Dr. F. J. McDonald. Discussions were entered into by all present and an extremely interesting meeting was the result.

E. B. LYNCH, Reporter.

### NORTHEAST COLORADO.

The **Northeast Colorado Medical Society** met at Dr. F. G. Dutton's office, Julesburg, November 11, 1920. Drs. F. G. Dutton, G. F. Ewing, J. F. Hart, Charles Rook, J. H. Bush, J. C. Chipman, J. H. Daniel, M. R. Fox and E. F. Palmer were present. Dr. Charles Rook reported a case of rattlesnake bite, giving a full history of symptoms and treatment. This paper was discussed by most members present and no one had seen a death from snake bite. Dr. F. G. Dutton presented a boy who had had an extensive multiple fracture of the right parietal bone, gave a detailed history of same. The boy has completely recovered with a large part of bone absent. Most every member present discussed this very interesting case.

J. C. CHIPMAN, Reporter.

### NORTHEAST COLORADO.

**Northeast Colorado Medical Society** met at City Hall, Sterling, Dec. 9th. Members present: Drs. J. H. Bush, J. H. Daniels, J. C. Chipman, M. R. Fox, E. P. Hummel, J. A. Morchouse and E. E. Palmer of Sterling, and Drs. J. F. Hart and F. G. Dutton, Julesburg. Visitors: Drs. C. E. Lyman and Philip Hillkowitz of Denver, Drs. M. B. Sisson, R. M. Bowen, W. B. Lutes, W. W. Kecsee, also Dr. W. T. Coin, dentist.

Dr. C. E. Lyman gave a full explanation of the Rockefeller Foundation's proposition to this state, to donate a definite sum to aid in establishing an A1 medical school in the state.

All members present were in favor of the proposition and the president was instructed to appoint a committee of six to do all they could to secure same.

Dr. Philip Hillkowitz gave an interesting and instructive talk on "Scientific Aid of the Laboratory" in diagnosis and treatment. Many practitioners do not get the laboratory examination that would often be of definite help in their cases.

J. C. CHIPMAN, Reporter.

### BOULDER COUNTY.

At the **Boulder County Medical Society** meeting on December 8th a number of interesting papers were presented on the subject of "Thyroid Gland Disturbances", viz:

Diagnosis of Hyper- and Hypothyroidism, Dr. M. E. Miles.

The Surgery of the Thyroid, Dr. W. W. Reed.

X-ray Treatment of Thyroid Disturbances, Dr. W. K. Reed.

Medical Management of Exophthalmic Goiter, Dr. O. M. Gilbert.

**Diagnosis of Hyper- and Hypothyroidism.** M. E. Miles.

Our aim should be to diagnose hyperthyroidism early and not wait for the cardinal symptoms to appear.

Hyperthyroidism must be differentiated most frequently from three conditions. First, neurasthenia and simple nervousness; second, neuro-circulatory asthenia, effort syndromes, or irritable heart; third, non-toxic goiter, especially when occurring in nervous or neurasthenic individuals.

At one of the army encampments fifty-seven nervous cases were referred for metabolic study, and although twenty-four of them had been diagnosed "toxic goiter", only two of them proved to be hyperthyroid cases.

Besides the well-known clinical signs we have two tests that are of value in diagnosis—the Goetsch test and the basal metabolism test.

While the Goetsch test is much used, the reaction is frequently doubtful, and occasionally in hypertension cases, alarming.

The Goetsch test is made by injecting hypodermically  $\frac{1}{2}$  cc. of a 1-to-1,000 epinephrin solution. In case of a positive reaction there is a rise of blood pressure and pulse rate of at least ten points each, and associated with this there should be nervousness, tremor, anxiety and vaso-motor phenomena, as pallor or flushing. In the absence of the necessary increase in blood pressure and pulse the reaction is negative.

The basal metabolism is the most reliable index we have of the activity of the thyroid. It is by far our best guide in diagnosis, prognosis and treatment of hypo- and hyperthyroidism. An estimation below +10 per cent or above -10 per cent is normal. Plus 15 or -15 may not be abnormal. Rates above or below these limits are strong indications of hyper- or hypothyroidism, although rarely an apparently normal individual will give a +20 or 22 reading. Plus 75 means very severe hyperthyroidism; +50 to +75 severe; below 50 moderately severe or mild.

The basal metabolism test is essentially an oxygen consumption test. With a Benedict apparatus, such as we use, the subject breathes into a series of tubes and chambers of circulating oxygen. The  $\text{CO}_2$  is removed by passing the expired air through soda lime. On the spirometer drum is an indicator showing the amount of oxygen being consumed from this enclosed oxygen circuit. By knowing the height and weight of the subject the body surface area may be obtained by consulting a DuBois chart. DuBois has also worked out a table giving the average amount of oxygen consumed per minute per square meter of body surface, and one can readily calculate the percent above or below the normal by comparing with that table. Account must be made of the temperature of the oxygen in the tank and also the barometric pressure. The former should be reduced to zero centigrade and



the latter from 620 mm., the barometric pressure at Boulder, to 760 mm., which is that at or near sea level.

Hypothyroid cases (cretinism and myxedema) give a reading of from -10 or -15 to -35 or -40. The latter figures usually indicate total absence of thyroid function.

Nonendocrine conditions giving rise to high basal metabolism are: Severe cardiac and renal diseases, lukemias, some cases of pernicious anemia and fevers from any cause. In starvation and emaciation, basal metabolism is abnormally low.

Sympatheticotonic cases (very rapid heart cases) with moderate increase of basal metabolism, say +40 or +50, offer much better prognosis than vagotonic cases (comparatively slow heart cases) with high basal metabolism, +75 or over.

Patients that do not show a drop in basal metabolism on complete bed rest, or in which there is a rise in the basal metabolism curve are, as a rule, poor surgical risks. Such patients should have x-ray treatment, followed, if indicated, by operation.

Since clinical signs may be misleading in interpreting thyroid activity, basal metabolism estimations should be made from time to time in "hyper" cases receiving rest, x-ray or operative treatment, and in "hypo" cases under gland treatment. Either surgery or x-ray treatment may be carried too far or not far enough and nothing else gives as reliable check as the basal metabolism. Along with the basal metabolism curve there should be made pulse and weight curves. As improvement takes place there is usually a parallel drop in the metabolism and pulse curves with a reciprocal rise in the weight curve, although the weight curve rise may be retarded. In hypothyroid cases the metabolism and pulse curves rise under thyroid feeding, while the weight curve falls, unless growth becomes a factor.

**Case Report:** Female, age 34, clinically a fairly typical case of hyperthyroidism of four years' duration.

September 14, 1920: B. M. +168 per cent, probably faulty technique; leaky mouthpiece. Pulse 118, after rest; x-ray; bed.

September 28, 1920: B. M. +78 per cent; pulse 84, after rest; x-ray; bed.

October 14, 1920: B. M. +79 per cent; pulse 94, after rest; x-ray; bed.

October 29, 1920: B. M. +39 per cent; pulse not recorded; x-ray; bed part time.

November 24, 1920: B. M. +29 per cent; pulse 66; x-ray; bed very little during daytime.

Clinically this case has improved very much, especially the nervousness, exhaustion, rapid heart and palpitation. When treatment was begun she was going down rapidly. The weight continued to fall during the early part of the treatment, but rose again toward the last and is still rising. The first two x-ray treatments were less than one-half erythema doses, the last three, three-quarter erythema doses. No more treatments will be given so long as the basal metabolism curve continues downward.

**The Surgery of the Thyroid.** W. W. Reed.

Unfortunately, as a part of this symposium, I can give you very little of my own personal experience with the surgery of the thyroid gland; my surgical endeavors, as you know, have been along different lines. Until fairly recent years and until the advent of the very accurate and helpful tests in diagnosis and prognosis, the Goetsch test and the basal metabolism test of which Dr. Miles has given us such a splendid description, there have not been very encouraging prospects for thyroid surgery, particularly in the toxic goiters.

The early goiter surgery was largely that of the adenomas—cystic, fibro-cystic, tuberculous and cancerous varieties—the chief indications being pressure, deformity, dyspnea, etc.; and the results in these varieties have always been satisfactory. The mortality in exophthalmic goiter and in the highly toxic varieties, until recent years, has been so high that only last resort surgery was done, and necessarily last resort surgery means high mortality.

The work of Kendall, Plummer, Crile and others has thrown such a great light upon the function and physiological action of the thyroid secretion that the surgery thereby has been made comparatively safe. In Criles's hands practically 100% recovery. The Mayo Clinic cures 70% of toxic goiters by surgery.

We have heretofore been told that how we live depends upon the liver, but this is no longer true. How we live and the rate at which we live depends upon the thyroid. Its secretion controls the energy of the body. If its secretion is too great, the gland too active, too much energy is developed; living at

too great a rate results, tissues are oxidized too rapidly and the basal metabolic rate runs high—the thyroid gland is diseased.

Normally the thyroid weighs one ounce and has such an abundant blood supply from its four large arteries, that all the blood in the body passes through it once an hour. Its structure is chiefly a mass of highly specialized cells and as you know, it has no duct. The secretion of its cells must pass through its lymphatic and venous systems so that hyperplasia or colloid accumulations can easily result in the gland itself.

Its secretion contains iodine and, according to Kendall, a highly toxic crystalline substance that he has named thyroxin. About 13 mg. of thyroxin is found in the gland and in all the tissues of the body. It is an excess of thyroxin that, according to Kendall, causes thyrotoxicosis, a rise in the basal metabolic rate.

In hyperthyroidism the basal metabolic rate may be increased from +16% to +100%, the average being about +57%. Simple ligation of the superior thyroid artery will reduce this in three months to +39%. Thyroidectomy will reduce the basal metabolic rate in eighteen days to +19%, being only 9% above the upper normal limit.

The benefit of operation is due to the reduction of the amount of thyroid secretion, bearing in mind the fact that the secretion remains in the system eighteen days after operation, and that all the secretion must not be destroyed by the operation. Thus it is always an important point in the mind of the operator how much of the gland to leave. Usually to leave the posterior capsule is sufficient and best. The size of the gland is no criterion as to its activity or toxicity. A very small thyroid may cause extreme symptoms or vice versa. The energy output may vary greatly and only the test of the basal metabolism will tell the story correctly.

Thyroidectomy performed at the right time, and when the basal metabolic rate has been reduced to a good margin of safety by appropriate measure, gives the best results in the surgical treatment of hyperthyroidism. Certain dangers must be borne in mind, notably hemorrhage, injury to the recurrent laryngeal nerves and to the parathyroids. The parathyroids control nitrogen elimination and thus protect against tetany, so that extreme care must be used in their protection and in maintaining the integrity of the posterior capsule.

The adolescent goiters, the goiters of school girls as a rule should not be operated upon. They are usually not of the hyperplastic variety but do contain colloid and can be greatly improved by the administration of iodine.

**Röntgen Therapy in Thyroid Gland Disturbances, Particularly Hyperthyroidism.** W. W. Reed.

Within the last few years x-ray therapy has been very greatly simplified and brought into a very much wider range of use by the advent of two factors: the invention and development of the Coolidge tube and the interrupterless transformer.

A condition which is readily amenable to treatment is that of hyperthyroidism. Hypothyroidism, on the contrary, is not amenable to x-ray therapy.

We will consider very briefly tonight the effect of roentgen therapy on hyperthyroidism. The most beneficial results are obtained by giving a series of treatments over the thyroid gland and supplementing, when occasion demands, by treatments over the thymus gland region.

The method of action of the x-ray: There are several theories as to the method of action. 1. The roentgen ray may influence the secretory part of the gland causing the secretion to more readily resume the normal type and also to cause the amount to become more nearly the normal. 2. The gland itself may not be changed, but the changes may occur in the blood serum as it passes through the gland. As has already been shown this evening the amount of blood passing through the gland is enormous as compared to its size, and this change might be of considerable significance.

The above are two theories as to the probable way in which benefit is obtained; but the most significant fact is that in a large number of cases, decided improvement is noted.

The improvement in these cases is shown by a lessening of the symptoms, the decrease in the metabolic rate and occasionally in diminished size of the gland itself—when enlarged. The symptoms that are usually the first to respond are the nervousness and restlessness, the patient resting better and feeling much better generally. There is a lessening in the heart rate, in the type of hyperthyroidism where the pulse is rapid, which gradually resumes the normal. The last sign to go is the tumor—although this may be unaffected when



present even though the toxic symptoms abate completely.

Method of treatment: There are two general lines of treatment used and the method chosen depends largely upon the technician. One method is the administration of large enough doses of rays to produce an erythema of the skin, repeated at intervals of three weeks or longer, the other method is more conservative and is the administration of doses of rays considerably below that required for erythema and repetition of increasing doses every two weeks or longer.

The interval of treatment depends upon the response of the patient. The reactions obtained after treatment are classified into local, general and constitutional, or both.

The local reaction consists of an erythema of the skin area treated and, in our technique, is guarded against by the use of filters (4 mms. of aluminum and a sole leather), when from 25 to 45 milliamperes minutes of rays are given.

The general or constitutional reactions may be first, a short period of aggravated symptoms, shown by increased nervousness, increased heart rate and other signs of increased toxicity caused by the primary irritation of the gland. Secondly, a gradual diminishing of symptoms without the particular notice of the patient—this is the reaction we wish to obtain.

I will not go into the exact dosage here as that is somewhat of a variable quantity depending upon the patient's general condition and reactions to treatment.

The dangers of roentgen ray treatment of this condition are about the same as in any other place.

Burns are best guarded against by knowing whether the dosage is correct, appropriate filtration and proper interval between treatments.

Over treatment to the point of producing a condition of hypothyroidism and atrophy of the gland is best guarded against by basal metabolic rate estimations.

We are fortunate here in Boulder in being able to check the basal metabolism at frequent intervals during the course of treatment. We have found that following a moderate dosage of rays to a moderately severe case, in two weeks' time the basal metabolic rate falls from ten to thirty points.

In conclusion then I will say that roentgen therapy in hyperthyroidism offers a very valuable means for relieving the patient's symptoms and when used with frequent checks of the basal metabolic demonstrations gives very favorable results. Treatments, of course, may be required over long periods of time but with those whose dread of operations outweighs their desire for a more certain cure offered by surgery, the time element matters little. As a preparatory step to surgery it is very valuable indeed.

The other conditions arising in the thyroid gland have little in common with x-rays. Hypothyroidism is not benefited by treatments. Cysts are best excised, as would be malignancy if recognized early enough.

**The Medical Management of Exophthalmic Goiter.** O. M. Gilbert.

Since x-ray treatment is excluded from the medical field, it does not leave very much to be discussed, for the surgical and x-ray treatment constitute by far the most important part of it. However, there are cases that cannot have surgery or x-ray for one reason or another and who must consequently be treated medically. Furthermore, medical treatment subsequent to surgical is very important.

In 1912, I observed the work of Sir Hale White in Guy's Hospital, London, and it was certainly rather remarkable, the results he got from absolute rest, fresh air and good feeding with the temporary assistance of belladonna, etc. Furthermore, he had reported one hundred cases so treated, followed for a period of thirteen years, and felt that the results compared very favorably with those obtained by surgical treatment; still it must be remembered that that was before surgery had advanced to its present-day successful management of these cases. It is furthermore only safe to assume that the more serious cases were operated upon, while the less serious ones were treated medically.

About ten years ago, inspired by an article in the Boston Medical and Surgical Journal reporting the treatment of eighty-two cases by neutral hydro-bromide of quinine, I took up this treatment and was very enthusiastic about it and I am still certain that I did get some very excellent results, at least temporarily; but that was before the days of a more accurate diagnosis by determination of the basal metabolism, so I suspect that I would

now have to exclude some of these cases as not being true Graves' Disease. This treatment, as you know, has been fostered by Forchheimer and must be seriously considered where surgery and x-ray are not available or for any reason are contraindicated.

The Benedict apparatus has made the diagnosis so much more definite that we shall be less subject to error in our future reports than we have been in the past.

## COLORADO NEUROLOGICAL.

The Colorado Neurological Society was organized December 29, 1920, at a meeting of state neurologists called by Dr. George Moleen. The president of the new society is Dr. Howell T. Pershing; the vice president is Dr. Philip Work of Pueblo, and the secretary-treasurer is Dr. George Moleen.

Meetings will be held five times a year.

The charter members of the Colorado Neurological Society are Dr. Hubert Work, Dr. Philip Work, and Dr. C. W. Thompson, of Pueblo; Dr. Frank Stevens, of Colorado Springs; and Dr. Howell T. Pershing, Dr. Cyrus Pershing, Dr. George Moleen, Dr. Edward Delehanty, Dr. George Neuhaus, Dr. Edward Lazell, Dr. Leo Teplev, Dr. Samuel Goldhammer, and Dr. C. S. Blueinch, of Denver.

## LARIMER COUNTY.

The Larimer County Medical Society met December 8 at 7:30 p. m. for the purpose of electing officers. The following were elected: President, Dr. Roy Gleason of Fort Collins; vice president, Dr. D. McCarty of Berthoud; secretary, Dr. F. L. Sadler of Fort Collins; treasurer, Dr. R. W. Morrish of Fort Collins; delegate to the State Medical Society, Dr. W. A. Kickland; censor, Dr. T. Clarkson Taylor of Fort Collins.—Fort Collins Express.

**IT IS IMPORTANT THAT THE PROGRAM COMMITTEE BE ADVISED EARLY OF PAPERS TO BE SUBMITTED FOR THE ANNUAL MEETING. AT LEAST SIGNIFY YOUR INTENTION TO READ A PAPER, GIVING THE TITLE.**

## Book Reviews

**Diagnosis of Disease**, by Hobart Amory Hare, M.D., B.Sc., Professor of Therapeutics and Diagnosis in The Jefferson Medical College of Philadelphia; Physician to The Jefferson Medical College Hospital; one time Clinical Professor of Diseases of Children, in The University of Pennsylvania; Commander U. S. N. R. F. Author of a text book of Practical Therapeutics and a text book of the Practice of Medicine. Lea and Febiger, Publishers, Philadelphia. Price, \$6.00.

The author has omitted laboratory methods from his text, laying special emphasis on symptomatology. This volume is essentially devoted to a plan whereby a recognition of symptoms will lead the physician to a diagnosis.

The work is well divided into chapters treating each system as a group. Thus instead of describing symptoms of a particular disease as myelitis or locomotor ataxia, there is found in the chapter on the Feet and Legs a discussion of the various forms of loss of power in the legs, so that the physician who is consulted by a paraplegic patient will be able readily to reach a diagnosis.

The book is written on the plan which is actually followed in practice, that is, the upbuilding of a diagnosis by grouping the symptoms.

L. I. M.

**The Shibboleths of Tuberculosis**, by Marcus Paterson, M.D., Medical Superintendent, Metropolitan Asylums Board, Colindale Hospital; Late Medical Superintendent, Brompton Hospital Sanatorium. Frimley; Medical Director King Edward VII. Welsh National Memorial Association; Resident Medical Officer, Brompton Hospital, London; Author, "Auto-Inoculation in Pulmonary Tuberculosis," New York, E. P. Dutton and Company. See "Editorial Comment" for a review of this book, p. 2 this issue.

**PAPERS FOR THE NEXT ANNUAL MEETING MAY BE SUBMITTED BY TITLE AND ABSTRACT AT ANY TIME TO DR. GEO. A. MOLEEN, CHAIRMAN, MACK BUILDING, DENVER, COLORADO.**



# Colorado Medicine

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## Editorial Comment

### THE SCIENTIFIC PROGRAM OF THE PUEBLO SESSION.

The arrangement of the scientific papers to be presented at the meeting of any medical society is fraught with many difficulties that are appreciated only by the experienced, or in other words, by those who have had to do with the acceptance, approval and arrangement of subject matter on the program.

In order to facilitate interest and discussion it was suggested at the last meeting of the House of Delegates that the time be extended for the submission of papers, and after much discussion it was generally conceded as desirable that active work be begun as early as possible. Hence the committee having this in charge for the coming meeting desires to impress upon all members of the Society who anticipate a participation in the work of the next assembly, the necessity of early notification of such desire and the submission of the title and if possible an abstract of the subject matter to be presented. In order that this work may be properly arranged and the announcements of the subject matter made far enough in advance to stimulate discussion, the committee intends to assume the liberty of fixing the final date for the submission of titles as July 15th, and the copy for the program will be closed August 1st; by this means it is hoped to have the program ready for distribution by August 15th or 20th, so that it will be available to the members at least two weeks before the session.

It is earnestly desired that all members of the Society actively interested in the program will cooperate with the committee insofar as to arrange for the early announcement of the title and the submission of the abstract, as provided for in the by-laws of the Society. G. A. M.

### PUBLIC VS. PHYSICIAN.

Many physicians feel that the average citizen is prejudiced against the medical profession and its public policies.

It is true that one of the weaknesses of democracy is a liability to error of judgment in technical questions. Medical questions are no exception to this rule, and it is not surprising that the public sometimes pays more attention to the

critic than to a profession which excels all others in its capacity for saying nothing in its own defense.

Fortunately the majority of intelligent and educated people are sympathetically inclined toward the medical profession. The mistake these people make is that of expecting the physician to fight his own battles.

Misunderstanding is the basis of many of the calamities of family, civil, and international life. It certainly played a part in bringing on the great European War, how great a part we shall perhaps never fully know.

Provided his own interests are safeguarded, the average man is in favor of fair play for everybody else. If the hospital bill, the medical practice bill, and the public health bill fail of passage by the Colorado legislature, it will not be because most legislators are dishonest or ill-intentioned, but because they and the public behind them misunderstand.

Why does the public misunderstand medical problems and medical men? When questions of public policy arise the physician who thinks at all is apt to think of himself merely as a public benefactor. The layman, on the other hand, often regards the physician as a member of a privileged class who is always on the lookout for his own interests and always opposed to anything which threatens his privilege.

In spite of some feeble efforts at the teaching of physiology in the public schools, the high school graduate is usually appallingly ignorant concerning his own body; and it is impossible for the public to obtain even a fair understanding of medical subjects without a good elementary grounding in anatomy and physiology. These subjects should be adequately taught to every public school student, in the most graphic and practical manner possible. They are not likely to be so taught unless upon the initiative of the medical profession.

Another route along which the public may become better educated in medical questions is through individual propaganda by the physician among his patients. But the busy practitioner is often reluctant to sacrifice his time for this purpose, and it must also be admitted that he often lacks the kind of general and medical education which would qualify him to act as a teacher.

The possession by the laity of a fair understanding of the principles of health and disease would not render the physician immune to criticism. There would still exist religious sects

which denied the manifest truths of the physical universe. There would still exist hordes of uneducated charlatans who desired to receive the financial rewards of the regular physician without submitting themselves to the arduous training through which he prepares for practice. And there would probably still exist the patent medicine vendor to whose advantage it is to stir up trouble for the man of science.

In some respects, moreover, the public understands the physician better than he understands himself. Physicians are merely human beings with special training. Like other human beings they are often guilty of selfishness and neglect, and shamefully often guilty of ignorance, which in the present age is perhaps the most remediable defect. Too often the physician forgets to study the patient as well as the disease, falling into ruts out of which he is only jostled by the activities of mental healers and dietary faddists.

It is an interesting commentary upon democratic processes that many public questions are settled not according to the well thought out opinion of the public at large, but according to the views or desires of those who shout most audibly. To accomplish legislative objects physicians as a group must be prepared to do a fair proportion of the shouting.

In short, to improve the understanding between the layman and the physician, medical men should work for the improvement in the first place of medical and secondly of lay education in matters pertaining to the human body; they should attempt a more genuinely altruistic outlook in all their work upon patients, although of course protecting their own perfectly ethical interests; and they should be willing at all times to play a proper part as citizens for the promotion of the common good.

W. H. C.

### TECHNICIANS IN ANESTHESIA.

Modern practice of medicine is not simply as much, but is more of an art than it has ever been. Twentieth century discoveries of scientific aids in diagnosis and treatment have not done away with the need of individual attention of the practitioner to his patient, close regard for detail and that particular refinement of "touch" here and there in the management of a case which undoubtedly often turns the scale of life to the side of recovery when it is sensitively balanced.

This applies to the general practitioner; it applies to the specialist; and it is especially true with regard to the anesthetist—the anesthetist, whose drug is a poison that must be carefully watched in its effects and given in the least amount compatible with smooth anesthesia; whose patients are often in a precarious condition from disease and no two of whom will respond exactly alike to his drug; upon whom devolves the judgment as to the patient's condition during every minute of anesthesia and who must therefore have the diagnostic power of an experienced physician.

How then under the sun is there an excuse for relegating to any nurse or other layman the

regular practice of a branch of medicine upon which human life directly depends?

The technician is out of place in most branches of the medical profession. No physician would give himself over to an optician for refraction if a competent oculist could be called upon; he would not trust an x-ray technician for a gastrointestinal examination of himself; and what one, if he is to undergo an operation, will not choose a physician-specialist in anesthesia into whose care to trust himself in that period of oblivion which every one of us ordinarily fears more than the operation? And why do we fear the anesthetic? Is it not because we realize the gravity of its danger? The lay patient is notoriously unafraid of it, although he may fear the operation; the doctor does not share the layman's indifference to either.

Yet it is conceivable that the day may come when such a specialist will not be available, for his field is already jeopardized by the technician. No physician will stick to or take up with a specialty which puts him on a par with a nurse.

That the administration of an anesthetic is "practicing medicine" is sustained by numerous legal opinions. The Chief Counsel for the California State Board of Medical Examiners renders the opinion that "One who is not licensed and who administers an anesthetic, is subject to the penalties of Section 17 of the California Medical Practice Act, because one can not administer an anesthetic unless a diagnosis and treatment are performed. . . . In case of an operation it is necessary to administer more or less of the anesthetic and in so doing the one who administers it is guided by his own diagnosis as to what amount should be given and when. The surgeon who is performing the operation is not always in a position to direct the administration, and therefore must rely upon the one giving the anesthetic; hence the giver of the anesthetic is violating Section 17 of the Medical Practice Act of this state."

The attorney for the American Medical Association is said to hold a similar view.

In a very able presentation of this whole subject, the vice-president of the American Association of Anesthetists\* states the nurse's status in this field succinctly: "To give an anesthetic is one thing, to practice the art of anesthesia is another. The proper administration is more than a mere mechanical performance and involves something more than technical ability.

"The term 'anesthetist' presupposes the ability (1) to make the adequate preliminary examination or to properly interpret and correlate the findings of others and direct the patient's preparation; (2) to choose the suitable anesthetic and produce a smooth and pleasant induction; (3) to maintain the patient on the least amount of anesthetic consistent with the surgical procedure; (4) to instantly recognize and be prepared to remedy with quiet confidence any untoward symptom which may arise. Such diagnostic, interpretative and remedial skill can

\*Seymour, Eleanor: The Present Status of Anesthesiology and the Anesthetist, Bulletin No. 8, The National Anesthesia Research Society, December, 1920.



only be acquired by a full medical course. . . . The administration of a general anesthetic is the giving of the most powerful and dangerous drug at the most perilous time of the patient's life and an anesthetist represents himself as being competent not only to diagnose conditions but to administer emergency treatment should indications arise. A nurse is neither licensed nor permitted to order the preliminary opiate nor prescribe the stimulant and restoratives which may be indicated, although with strange inconsistency she may be allowed to administer an anesthetic, the most powerful of drugs, and this for hours at a time."

F. H. McMechan, A.M., M.D., in an editorial in the anesthesia supplement of the American Journal of Surgery addressed to anesthetists, says: "The same false leaders who plunged nurses into anesthetic service in the war, are continuing their efforts to place the specialty of anesthesia in every city of the country on the dead level of mediocrity of a nurse's competence. The movement is just the same as if the specialty of obstetrics were being handed over by its leaders to midwives.

"The only way to stop this annihilation of the specialty is to stop training nurses, refuse to go on salary and stand four-square for the safety of patients, the advancement of your specialty and your professional prerogatives."

The reason for the existence of the lay anesthetist may not be far to seek. She may be hired cheap, while a respectable fee for the anesthetic she gives may go elsewhere. It is probable that few operations are done in general pay hospitals where a special fee for the anesthetic is not charged. If the technician is on a salary, the hospital or surgeon profits by the fee—as reprehensible as any other fee-splitting.

It is to be regretted that a few large eastern clinics have set an example in training nurses for this work; they are looked to for precedent by many of the minor "groups" which have sprung up over the country and no doubt many of these groups follow their lead in the matter of operating room regime, including the introduction of nurse anesthetists, not realizing that there may be safeguards present in those clinics which they do not themselves furnish.

One remedy for this evil would be for the American Association of Anesthetists to educate the public with regard to it through propaganda and public utterance in the same way as the American College of Surgeons has done regarding surgical fee-splitting.

### WHY REPORT?

That the health authorities may know where the diseases are. When that is known repressive measures may be instituted.

That the trend of certain diseases may be traced. Are they becoming more prevalent or not? Are they more virulent or not?

That other sections of the state as well as the country may take precautions to prevent the spread of disease.

Reporting of communicable diseases has in-

creased, according to our vital statistician, fully fifty percent during the year 1920. The causes of this increase may be mentioned: Better realization by physicians of their responsibility to the public and personal work by members, officers and employes of the State Board of Health, and the local health officers. Examination of death certificates frequently shows no report of the case of contagious disease of which the individual has died. A gentle inquiry is then made—sometimes this is ignored but in the vast number of cases the doctors will respond and this is a sample of the alibi: "I didn't know it was a reportable disease." "I promise you it shall not happen again." "I reported it." And it is found in an overdue lot of reports coming in some six or seven months later.

Nearly all the states doing good health work have had the "franking" privilege and arrangements are now being made for Colorado to have it. Under this arrangement after the reports are in, a weekly report by telegraph is made to Washington. All local health officers are to be "Assistant Collaborating Epidemiologists" and in order to comply with the Public Health Department's request for weekly reports, it will be necessary for the local health officers to report at least weekly to the State Board of Health. This it is earnestly hoped they will do, even those of the self-governing cities.

There is a certain amount of communicable disease even in the best regulated community, so when one looks over the records and finds practically no reports whatever of anything—nobody born, nobody sick, nobody dead—he becomes suspicious that "something is rotten in Denmark." A little investigation proves that the law regarding reporting is totally ignored. These cases are not so numerous as they once were.

The following communication is being sent to all the local registrars of vital statistics in the state:

"To the Local Registrar of Vital Statistics:

"Will you please send as soon as practicable to this office the names and addresses of all doctors and midwives practicing in your district?"

"Kindly typewrite the names and be careful to get them correct.

"There is a provision in the Vital Statistics Act requiring all local registrars to report within thirty days after the close of each calendar year the names of all physicians and midwives who have been registered in their district.

"Please indicate the school of the doctor as Osteopathic, Chiropractic, Regular or Homeopathic, also specialty as eye, ear and nose, or surgeon, etc.

"Also designate the local health officers in your district and whether city or county."

By this we hope to have a complete roll of all the doctors and all who are practicing medicine legally or illegally in the state, something which as yet has not been accomplished.

COLORADO STATE BOARD OF HEALTH,

J. W. M.

PAPERS FOR THE NEXT ANNUAL MEETING MAY BE SUBMITTED BY TITLE AND ABSTRACT AT ANY TIME TO DR. GEO. A. MOLEEN, CHAIRMAN, MACK BUILDING, DENVER, COLORADO.



## Original Articles

### SPECIAL POINTS IN THE SURGERY OF GALL-BLADDER AND DUCTS.\*

G. W. CRILE, M.D., F.A.C.S., CLEVELAND.

**1. Relation of the Liver to Gall-Bladder Surgery.** If one were to base his opinion concerning the function of the liver entirely on text-books on physiology, one might conclude that life could continue after the removal of the liver. It is well known, however, that an animal will live only from two to eight hours after the removal of the liver. It would appear, therefore, that the real function of the liver is still to be defined, and that in gall-bladder surgery, and in surgery of the common duct we are to a certain extent dealing with the unknown. All surgeons are familiar with the so-called "liver shock" which sometimes supervenes after operation on the gall-bladder. The patient goes through the operation satisfactorily and recovers from the anesthesia. Blood pressure examinations and general physical examinations of the patient give no adverse indication. At the end of the first day, apparently all is well, but the night is not so satisfactory. On the following day the patient is restless, perhaps has nausea; he loses interest in his surroundings, refuses food, the tongue is dry and coated, a period of steadily increasing depression develops; in three, four, or five days the patient is dead. Autopsy does not reveal the cause of death.

In considering this peculiar danger in gall-bladder surgery, it became evident that researches should be directed to this particular problem; i. e., to determine what functions may be possessed by the liver in addition to those described in the text-books. To this end, in our laboratory we inaugurated a series of experiments. While our results thus far do not justify any final conclusions, yet we have made certain observations of interest which suggest at least that we may be on the right road to knowledge which will aid us in controlling the destiny of our patients.

Some years ago in association with Dr. J. B. Austin, who is a very able cytologist, many observations were made upon the changes present in exhaustion in the cells of the various organs and tissues of the body. We found that changes occurred in only the brain, the liver and the adrenals; and that these changes appeared irrespective of the cause of exhaustion. We found also that the changes in the brain and the liver were so uniformly present as to make it appear that these organs played an interdependent rôle in activity and exhaustion. We then sought to determine the nature and extent of this interdependence, and to discover which, if either, was the more dependent upon the other. We found that after the liver was removed the brain cells

disintegrated very rapidly—within an hour or less; that after the excision of the liver, the injection of adrenalin did not cause a phase of hyperchromatism of the brain cells, as was the case in intact animals; and that the disintegration of the brain cells following excision of the liver could not be distinguished from disintegration of the brain cells due to any other cause. On the other hand, the liver cells showed no disintegration in animals kept alive by artificial respiration after decapitation. These findings showed that some vital relationship exists between the brain and the liver so that the brain cannot survive without the liver. As far as our researches have disclosed, no other organ is as sensitive to the loss of the liver as the brain. This earlier research, however, offered no suggestion as to the explanation of this relationship between the brain and the liver.

It then occurred to me that perhaps the clue to this problem, as well as to certain other interrelationships within the organism, might be found in the application to the organism of the laws established by scientists in other fields. Lillie, Loeb and other physical chemists have found that whenever cells have had brought to them the impetus to increased work, as for example in cell division, the permeability of the surrounding membrane is increased.

Osterhaut has offered experimental evidence that variations in the permeability of plant cells are equivalent to variations in their electric conductivity. Following these leads, we then based our researches upon the hypothesis advanced in "Man, an Adaptive Mechanism"; i. e., that men and animals are in effect electro-chemical mechanisms, operating under the laws of physics. Accordingly we made experiments to determine whether or not the electric conductivity of the various organs and tissues of the body varied with their functional activity. In this research we found that stimulation or exhaustion from any cause was accompanied by changes in the electric conductivity of the various organs and tissues of the body, those in the brain and the liver paralleling the cytologic changes observed in our earlier research. For example, we found that a single dose of adrenalin, sufficiently large to produce clinical evidences of increased brain activity, increased the electric conductivity of the brain, and that this increased conductivity corresponded to the hyperchromatism of the brain cells produced by an equal dose of adrenalin. So also repeated doses of adrenalin, which clinically produce fatigue, caused decreased conductivity of the brain and chromatolysis of the brain cells. Of special significance, moreover, as regards our investigation of the interrelation of the brain and the liver, was our finding that the conductivity changes in the liver were the antithesis of those in the brain; that is, after a single dose of adrenalin, the conductivity of the brain was increased, and the conductivity of the liver was decreased. After repeated doses of adrenalin, producing exhaustion, the conductivity of the brain was decreased and the conductivity of the liver was increased. A large series of observations of the conductivity of the brain

\*Edited from stenographic notes of an address before the annual meeting of the Colorado State Medical Society, Glenwood Springs, September 7, 8, 9, 1920.



and of the liver in conditions of stimulation and of exhaustion from many different causes established this antithetic relationship.

In these studies of electric conductivity as in our cytologic studies, it was necessary to kill the animal before the observations could be made, so that although the condition of the cells at the moment of death could be determined, the progress of the changes during life could not be determined. It occurred to me that since variations in function are almost invariably accompanied by variations in temperature, valuable data might be secured by measuring the changes in temperature of the brain and the liver and in other organs during life by means of the thermocouple. To this end special thermocouples were devised, so sensitive as to make possible the measurement of temperature variations within one one-thousandth of a degree. Here again our findings were in accord with those in the cytologic as well as in the conductivity researches. We verified the fact established by other observers—that each organ has its own range of temperature. As our especial interest was in the brain and the liver, our observations thus far in this research, which is still in the initial stage, have in the main been continued to observations of the temperature changes in these organs under conditions which, with one important exception, were identical with those in the preceding researches—the exception being that in this research our observations were made upon the living animal. We have found that every change in the condition of the animal, however produced, is accompanied by a change in the temperature of the brain. This change we may consider is the effect upon the brain of the temperature conditions in all the organs of the body combined, just as the temperature of a room is the resultant of the factors that add heat and the factors that subtract heat; e. g., the combination of the temperature of each and every person in the room with that of each and every object in the room. The resultant of these combined temperatures, however, is ultimately determined by the object with the highest temperature—the stove or the furnace in the winter time; the hot, sun-lighted air in the summer. In the normal animal organism, the liver appears to have the highest temperature. Therefore, when the temperature of the brain rises or falls under varying conditions, we may naturally consider first of all the influence of the liver. In support of this relationship, we found that after complete ligation of the liver, the temperature of the brain began to fall immediately and continued to fall until the death of the animal. This added final confirmatory evidence in support of the conclusion from our previous researches that, without the liver, the brain cannot function.

It then occurred to me that this essential dependence of the brain upon the liver might explain the so-called "liver-shock" after gall-bladder operations. We therefore studied the effect upon the temperature of the brain and the liver of the various factors attending surgical operations. As one would expect, the effect of a low

blood pressure from resulting hemorrhage is a progressive lowering of the temperature of the liver and of the brain. Ether anesthesia progressively lowers the temperature of the brain, the temperature curve corresponding closely to that following the ligation of the liver excepting during the initial stage—the period of excitement—when the temperature rises. It is certainly a very interesting fact (although we are not yet in a position to draw any inference from that fact) that the length of life after excision of the liver is almost identical with the length of time that an animal can live under ether anesthesia. Is ether anesthesia the equivalent of the complete suspension of liver function?

We found that surgical trauma, manipulation of viscera—any of the maneuvers incident to a surgical operation—produced changes in the brain temperature, tending to a progressive lowering in proportion to the extent, severity and protraction of the stimulus. Exposure of the viscera alone produced a progressive fall in the temperature of the brain, comparable to that following the excision of the liver. In view of these observations, it seemed as though it might be possible that the reason why a man or an animal can live for but a limited period of time under complete ether anesthesia may be that, among other effects of the anesthetic, the function of the liver is completely inhibited. The explanation of the way in which ether anesthesia is produced is in accord with this supposition. It is known that ether increases the resistance of the cell membranes—diminishes their permeability. That is, the power of the cells to be stimulated, to act, to promote vital processes, is diminished; interchange between the plasma and the gases is interfered with; the cells cannot receive oxygen; and asphyxia may result; in short, the cells may be asphyxiated. Our temperature, electric conductivity and cytologic observations as well as the clinical course of events indicate that when the liver is excised, the function of the brain cells is largely suspended.

We next extended our observations to include certain protective measures. We found that under light nitrous-oxid-oxygen anesthesia and analgesia, the temperature of the brain remained practically unchanged. Under deeper anesthesia with gas-oxygen the temperature of the brain fell, but not as rapidly as under ether anesthesia. The introduction of hot water by the mouth, the application of hot packs, the elevation of the feet, produced an immediate response in an increased temperature in the brain, thus throwing new light upon the therapeutic value of these agents.

All this may seem a very far-fetched line of evidence in connection with surgery of the gall-bladder and ducts. What is the practical application?

First of all, these studies appear to indicate that in "liver shock" the internal respiration of the liver cells has been interfered with to an extent which as effectively prevents its functioning as if the liver had been ligated. Why is "liver-shock" peculiar to gall-bladder operations? In the patient with deep jaundice, who



has suffered a period of nausea with consequent loss of nutrition and of water equilibrium, the internal respiration of the cells—of the liver in particular—has become impaired and in addition the function of the liver is quite certainly interfered with by the back-pressure of the bile. If, owing to infection, to diminished nutrition, to want of water, to lowered blood pressure, to the back-pressure of bile, the internal respiration of the liver has been reduced ten, twenty, forty, sixty or eighty percent at the time of operation, to that extent will the brain have been compromised and by so much will the power of the liver to function in the presence of the deleterious factors of the operation have been reduced. If the internal respiration of the liver cells has been reduced by forty percent and the patient is placed under full ether anesthesia, which of itself alone will reduce the internal respiration in a like degree, then the remaining twenty percent of functioning power can hardly suffice to carry the patient through. Moreover, in addition to the anesthetic, the trauma of the operation, the cooling of the viscera and perhaps hemorrhage will add their quota so that a one hundred percent loss of liver function is all too readily reached.

It follows then that surgical measures, as indicated by the findings in our conductivity and temperature studies should be directed primarily to the restoration of the already impaired internal respiration of the liver cells and to the prevention of further damage.

As our experiments have shown a practically unaltered brain temperature under nitrous-oxid-oxygen analgesia as opposed to a continuous fall to the death point under full surgical anesthesia, analgesia only is employed if possible, and if deeper anesthesia is required at any stage in the operation, it is secured by the same anesthetic, since, as we have stated above, the fall in the brain temperature under full nitrous-oxid-oxygen anesthesia is very slow and gradual as compared with the rapid fall under ether anesthesia.

Infiltration of the surgical area with a local anesthetic is employed to protect the brain from the immediate alterations caused by trauma; and the amount of trauma is diminished by making the incision sufficiently large to provide a clear view of the entire field of operation. Warm pads are used to prevent cooling of the viscera. The liver itself is handled as little as possible. When the wound is closed, care is taken not to tie the stitches too tightly, thus obviating needless pain. The wound should receive the last- ing protection of blocking by means of quinine and urea hydrochlorid. Heat is immediately applied to the entire abdomen, following the indication in our experiments in which the application of hot pads or the introduction of hot water into the stomach produced an immediate increase in the temperature of both the liver and the brain. It is of interest to note that in several instances the increase in the temperature of the brain occurred first.

A sufficient blood supply is an absolute essential to the maintenance of the internal respiration of the cells. Therefore, if the blood pres-

sure is low or if the patient has secondary anemia, as a result of his long illness, a transfusion of blood should be given at the time of operation, followed if necessary by another transfusion on the following day, and by still added transfusions as may be indicated later.

The internal respiration of the cells cannot be maintained without water, and especially large amounts are needed by these patients because of the abnormally large amounts of waste by-products to be eliminated. Water is therefore urged by the mouth, by rectum, and when necessary, by hypodermoclysis—by any and every route that will insure the reception of a sufficient amount to restore and maintain the normal water equilibrium—usually from 3000 to 4000 ccs. daily.

These factors in the surgery of the gall-bladder and the ducts are not new; but the manner of their application differs from what we have done before in one prime particular: heretofore we waited until the indication arose before making use of many of the protective measures we have noted above. Now, with the clearer understanding gained from our later studies, we anticipate the need of the patient. We know, by the application of physical measurements which give as accurate results as those secured by the use of the centimeter and the gramme, just what the factors of the operation will do to the patient; we know to some extent at least the condition of the patient's resources. We, therefore, carry our attack into the camp of the enemy rather than wait to be attacked. Other experiments and other observations, especially our experience in the war, have shown that, whenever a patient is reduced to the point where a crisis is expected, if the crisis is waited for before action is taken, the patient may be lost, in all probability will be lost. Whereas, if instead of limiting ourselves to a counter-offensive we make a surprise attack, the crisis does not supervene, for the enemy flees without attacking. In brief, it is better to supply even a patient who may not require it with every available means of protection than to take a chance out for the lack of any one factor which may protect him. Protection and treatment are based on the indication of the table of probabilities, not on the indication of the individual patient. We should not lose the patient while deciding upon the indications to prevent his loss.

As for the practical value of the application of the principle which laboratory research and clinical experience appear to have established—the essential relationship of the brain and the liver and the consequent vital need of protecting and augmenting the internal respiration of the cells of the liver—we can only say that while we are not satisfied as yet with our results, while we realize that thus far the studies we have quoted are suggestive rather than conclusive, nevertheless whatever fundamental law underlies the action of the measures we have indicated, by their application we have diminished the mortality rate of operations on the



gall-bladder and ducts from 6.2 percent to 1.6 percent.

**2. Diagnosis.** Everyone agrees that it is not always possible to diagnose a lesion of the gall-bladder. In exploratory operations gall-stones are sometimes found unexpectedly; and again, having opened the abdomen for the purpose of removing gall stones we find that the symptoms are due to some other cause. This does not happen frequently, but a few such mistakes amount to many in their impression upon the operator and the patient. As one measure whereby to add certainty to the diagnosis we have been using Meltzer's magnesium sulphate test as reported by B. B. V. Lyon, M.D., in the *Jour. A. M. A.*, September 15, 1919. In the application of this method we have found that certain characteristics of the gastric and duodenal contents are fairly constantly present in gall-bladder disease.

(1) In many cases of cholelithiasis the gastric fluid found to be is bile stained. When the fluid is clear, it does not mean, however, that gall-bladder disease does not exist, and more than half of the cases of cholelithiasis have a mild or moderate hyperacidity. The duodenal contents normally are clear and faintly bile tinged. A cloudy fluid from the duodenum means nothing if it is intermittently cloudy or acid, or if upon microscopical examination it is found to contain stomach elements. In other words, one must be sure that the collected fluid is true duodenal content and not fluid from the stomach which has just spurted through the pylorus. When the duodenal fluid is constantly cloudy and alkaline, and contains no pus cells, then inflammation of the duodenum or biliary tract is to be suspected.

(2) Of the first bile which is collected after injection of the sulphate solution, i. e., "common-duct bile", little can be said. Since starting this series we have had two cases of total obstruction of the ductus choledochus. In these we found only duodenal and stomach contents. In one case when the duodenal contents were cloudy and contained pus the bile which followed injection of the magnesium sulphate was clear and contained only a few cells. We believed in this case that we were dealing with a catarrhal jaundice with no involvement of the biliary tract, and the clinical picture strengthened this belief.

(3) When the "gall-bladder phase" is absent, we have concluded that the cystic duct is obstructed by adhesions, by stone, or that the gall-bladder is hampered by adhesions. In cholelithiasis, when the cystic duct is patent, the bile from the gall-bladder is often more viscid and occasionally is cloudy and contains pus cells. A cloudiness due to precipitated bile salts often occurs in normal bile when it has stood for some time. The color of the bile from the gall-bladder varies from almost black to a light brown, but is usually darker than the bile from the common or hepatic ducts. We have noted nothing peculiar in the color of bile from pathological gall-bladders. Usually the bile from a normal gall-bladder is prompt in making its appearance, coming in from two to six minutes

after the injection of the magnesium sulphate solution. A greatly retarded appearance of the "gall-bladder phase" occurred in two cases in which gall stones were found at the operation. Occasionally, too, we find an unusually small amount (10 to 30 cc.) of gall-bladder bile in cholelithiasis.

(4) Thus far the hepatic bile has served us only as a means of contrast with that from the gall-bladder.

In eight cases we have made the diagnosis of obstruction of the cystic duct previous to operation by the magnesium sulphate test. These eight cases all showed an obstruction of the cystic duct at the time of operation. In one case in which it was not necessary to remove the gall-bladder, we had the test repeated and secured a "three-phase test" following the operation, while before the operation we had been able to obtain only a "two-phase test", the "gall-bladder phase" being absent.

From our experience to date, therefore, we feel that this test is well worth while, and that it does give us additional evidence of the pathology of the gall-bladder.

If the gall-bladder is full of stones, no gall-bladder bile will appear, although other conditions also may prevent the delivery of bile from the gall-bladder. If the ducts are free and there is an infection in the gall-bladder, evidence of the infection will appear in the gall-bladder bile. Thus this test provides a valuable clue to the presence of chronic cholecystitis.

Of the 93 cases in which this test has been applied, we have operated on 33, and 30 have verified the findings. In one case in which we drained a gall-bladder which had contained a number of stones, repeated tests made after the fistula had healed showed the presence of gall-bladder bile which had been absent before the operation.

While this is a new test, and in many cases may not provide final evidence, nevertheless we are satisfied that it adds a valuable source of information in the diagnosis of gall-stones.

**3. Cholecystectomy vs. Cholecystostomy.** The case referred to above in which the gall-bladder was drained rather than removed suggests a brief discussion of the question as to whether the gall-bladder should be removed or drained.

A study of our case histories and our experience that too often gall-bladders which had been drained gave later trouble which necessitated their removal have made us adopt the following general rules:

The gall-bladder is removed in the following conditions:

- (a) if there has been an acute cholecystitis.
- (b) if there is a stone in the cystic duct at the time of operation.
- (c) if the cystic duct is hard and thickened from the former presence of a stone.
- (d) if the gall-bladder wall is thickened.

The gall-bladder is not removed if the patient has never had acute cholecystitis and the gall-bladder presents a normal appearance.

The question may be raised: why leave the gall-bladder in any case, since good health is



possible without it? Experience has shown that after the removal of the gall-bladder, or if it has failed to function for a considerable time because filled with stones, the common duct will often become dilated. Judd of the Mayo Clinic has shown that the common duct to some extent compensates for the gall-bladder by storing bile. As soon as the common duct begins to store bile it is subject to the same tendency to the formation of stones as existed in the gall-bladder. It would seem far better to take a remote chance of future recurrence of trouble in the gall-bladder than a considerable chance of the occurrence of common duct stones. Everyone knows how difficult is a repeated operation upon the common duct after the removal of the gall-bladder, especially if there are many adhesions. In addition to the possibility of the occurrence of stones in the common duct, there is the probability of injury to the common duct in the process of removing the gall-bladder. It is common experience that with the increased number of cholecystectomies, more patients are presenting themselves for operation on account of the divided common duct.

Cholecystectomy is the operation of choice under the conditions cited above, but it is an operation which is fraught with difficulty and carries with it a certain degree of hazard.

By the practical application of our conception of the relation of the liver to gall-bladder surgery as explained in our first section, and by use of the points in operative technique noted above, we have reduced our mortality rate from 6.2 percent to 1.6 percent.

### THE CORRELATION OF PSYCHE AND GASTRIC FUNCTION.\*

JULIUS L. MORTIMER, M.D., DENVER.

Since the days of Menenemus Agrippa the stomach has been generally considered as a life essential organ. And yet modern surgery has proven that it is possible to live without it. When the intestines assume gastric functions it is true that life may continue, but the existence remains a *vita minima*. Gastric digestion may be compensated for by other factors after complete gastrectomy to such a degree that the patient may even gain in weight, nevertheless the stomach is indispensable for the continuance of a perfectly functioning organism, owing to a close correlation between it and other organs; and its absence is considered to be an abnormal curiosity.

There are two known modes by which the various organs come into relation with one another: in the first place through the nervous system, then again by means of chemical toxic influences, in part of unknown origin, but closely related to products of internal secretion which are carried by the blood stream. In diseases of most organs gastric function may suffer, leading to symptomatic manifestations. How this may occur is not definitely known; it may be

found primarily along with other congenital abnormalities, or be due to psychic and nervous influences through the vagus and sympathetic, to toxic and infectious processes, chemical actions and, finally, mechanical factors through encroachment of neighboring organs. These are the paths by which disturbances of gastric function due to diseases of other organs may be brought about.

The stomach has its own automatic nervous system, Auerbach's plexus and the ganglion cells of Openchowski, that fully suffices to maintain its secretory and motor functions, even after it is severed from the rest of the nervous system. Under normal conditions gastric function is regulated by the parasympathetic (cranial autonomic-vagus) and the sympathetic (splanchnic) systems. Between these two there exists a certain antagonism, that is, the action of the vagus is principally stimulating whereas that of the sympathetic is inhibitory. Eppinger and Hess on the basis ofarmacodynamic investigations have classified two systemic dispositions depending upon increased susceptibility to atropin and pilocarpin and increased adrenalin tolerance (vagotonic) on the one hand and on the other an opposite relationship (sympatheticotonic). In practice a sharp differentiation between these two constitutional types is often difficult since one encounters so many transitional forms. Likewise vogotonic conditions of the digestive tract have been described (hyperacidity, hypersecretion, tendency to hypertonic spastic changes of contour, increased peristalsis of the small intestines and delay in the motility of the colon caused by spastic obstipation), also sympatheticotonic conditions (an- and subacidity, hypotony and tendency to ectasia). And here also various combinations and transitions are possible. Klee succeeded in demonstrating experimentally increased vago- and sympatheticotonus by alternately heating and cooling the vagus of a cat and has recorded the characteristic roentgenograms of the stomach in those conditions.

The vagus and sympathetic are, then, the paths through which the reflex regulation of gastric function by the central nervous system is effected. A lack of innervation by one of the antagonists results in an increased tonus of the other. This may be carried on reflex subcortically without conscious preception. However the psychic influences are transmitted by the same paths and lead to a similar end effect upon the stomach. Cannon demonstrated in front of the roentgen screen the checking of gastric motility at the antrum pylori through psychic alterations. Emotional influences may lead on to changes in every gastric function as proven by Pawlow and Cannon. In addition we have the indirect internal secretory action. Emotional processes manifest themselves on the adrenal system, likewise on the internal secretion of the thyroid, and perhaps on the rest of the endocrine apparatus. If a cat is brought to a certain stage of excitement, the blood is found richer in adrenalin (Cannon). This results in sympathetic stimulation and thereby depression of digestive function.

Gastric disturbances, vomiting not dependent

\*Read by title at the annual meeting of the Colorado State Medical Society, September 7, 8, 9, 1920.



upon food intake, nausea, anorexia may be present in many organic neurologic diseases, for instance in the initial stages of meningitis, especially the tuberculous form in children, so that at the onset it may be confused with acute gastro-enteritis. Vomiting is often the first sign that meningitis has set in upon a previous illness (otitis media). All processes involving an increase in intradural pressure, such as brain tumor, hydrocephalus, commotio and compressio cerebri, are accompanied by vomiting. Likewise singultus with eructation is often evidence of a brain lesion.

Tabetic crisis is not infrequently accompanied by gastric hypersecretion, when alkaline treatment may act favorably. There are purely motor forms of crises gastriques, in which the element of pain is entirely absent, and only biliary vomiting occurs. Hemetemeses rarely occurs in tabes and then only at the end of the crisis, so that differentiation from peptic ulcer is generally possible. However, errors in diagnosis do occur in such cases.

Here we come to discuss the question of the neurogenic etiology of peptic ulcer. Along with bacterial, traumatic, arteriosclerotic and embolic causes, von Bergmann declares the occurrence of a neurogenic cause probably upon a constitutional basis. This view is closely linked with the teachings of vagotonia. Owing to a psychi-nervous disposition there occurs a spastic state of the stomach with compression of the blood supply, with ischemia and a resulting digestion of the mucosa.

Then again the stomach may be a source of unfavorable influence upon the nervous system. In nervous individuals sleep is closely linked with gastric digestion; overloading of the stomach causes disturbing dreams. On the other hand those with hypermotility, sub- and anacidity, sleep better and longer when a full meal is taken evenings; otherwise they arise earlier, that is as soon as the stomach becomes empty.

Eclamptic attacks may occur in acute gastro-enteritis of children; tetany may develop as a result of various gastric disturbances, such as dilatation with or without pyloric stenosis. Furthermore idiopathic tetany may be accompanied by a disturbed chemistry and a cramp-like state of the stomach, and chorea based on gastric auto-intoxication has been described by Ewald and Witte; also certain forms of migraine belong here. Riegel describes a reflex vertigo in subacidity on a fasting stomach (vertigo e stomachio laesso). Boas declares that this form of vertigo is also found on the basis of a myasthenia. A co-existing vagotonic superacidity and an irritability of the vestibular apparatus may here be found.

The relationship between psyche and stomach has received consideration by various authors at various times and the etiology has been discussed either from the standpoint of gastric pathology or from the neurologic or psychiatric standpoint. Dreyfus has presented a critical study of nervous dyspepsia as a symptom complex. Most clinicians today recognize the mental change as primary in the larger number of

nervous dyspeptics. There is often no relationship between cause and effect but rather a somatic coincidence and psychic phenomenon (Albu) rising from the basis of a constitutional anomaly. All possible gastric disturbances have been demonstrated experimentally through psychic influences. Here practical experience fully agrees with the results of experiments. Who has not encountered that individual in whom any fright, any excitement, any anger affects the stomach (emotion dyspepsia)? In the nervous, or shall we state correctly, in the psychic dyspeptic a wide variety of disturbances of gastric function may be present not only involving the sensory but also the secretory and motor relationship of the stomach. A secretory anomaly alone is of no significance, on the basis of a single examination. If the same anomaly remains constant on repeated examination, then one should hesitate to classify the case under nervous dyspepsia but rather consider the possibility of an organic disease of the stomach; whereas if there is a variation in the findings and a certain inconsistency of symptoms, it favors the diagnosis of psychic dyspepsia.

Dreyfus for the first time succeeded in classifying the nervous dyspeptic as a distinct psychiatric entity on the ground that most are psycho-neurotics. This psychiatric analysis should only be accepted after every case undergoes a complete examination, so that embarrassing diagnostic and therapeutic errors may be avoided. The task becomes difficult when the manifold symptoms of psychic dyspepsia are superimposed upon an organic disease of the stomach, and the reverse when anatomic changes of the stomach arise on the basis of a psychic nervous derangement.

The symptom complex of nervous dyspepsia with its variable subjective complaints and objective disturbances of function may be found in the various psychoneuroses. Frequently the gastric disturbance is the manifestation of a pathologic reaction in a psychically inefficient individual as a result of a severe emotional oppression. Why it is that in some instances just the stomach is the organ in which the psychic complex manifests itself may be explained on the basis of an hereditary constitutionally inferior organ or as a result of certain diseases of childhood.

In passing on to the therapy of psychic dyspepsia we find that the methods differ widely. Whereas Dreyfus, for instance, limits himself wholly to the psychic treatment, disregarding dietetic instructions in order to impress upon the patient that he is free from gastric disease, Schule believes that a stomach revealing a disturbed chemistry, though not of organic origin, requires dietetic treatment. Any one-sided standpoint is wrong; one case must be distinguished from another. No doubt the individual psychic treatment and attempts to brace up the general nervous system are of foremost importance. On the other hand there are instances in which there exists extraordinary susceptibility and delicacy of the stomach, and with



caution as to quality and quantity of food these cases may be free from distress.

To what degree concessions may be made with these patients and how much harm may be done by allowing too much freedom or over restriction, cannot be stated in general. In these very cases it is of utmost importance to grasp the personal constitutional make-up and then endeavor to arrange the properly indicated therapy.

550 Metropolitan Bldg.

## OPHTHALMOSCOPIC PATHOLOGY.\*

EDWARD JACKSON, M.D., DENVER.

The best teacher in pathology that I have known has the student first examine the gross specimen, the tumor, the diseased organ. Then he can inspect the mass or the section with a simple hand magnifier. After that he studies the prepared section with the low power, a medium power, and finally the high power of the compound microscope. In this way the revelations by histologic methods and staining reactions in the tissues are connected with the conditions observed in the body or part while living.

There is a great gap between the pathology of today and the abstract speculation, the so-called theories of disease that disputed for primacy in the temple of medicine up to the nineteenth century. Brown, Cullen and Hahnemann closed an era that began with Galen. Between them and Bailey, Laennec, Rokitsansky, and Virchow was a great gap, although Morgagni and the anatomists had foreshadowed the change that was to come.

Theorists still live, but they no longer sway the forward moving currents of medical thought. Their speculations attract attention only as explanations of some newly observed histologic change or clinical phenomenon. The gap between the old pathology and the new was a great one. Now it is only historical, and grows less and less important as it moves backward in the perspective of time.

But between our modern pathology as it tends to development in the direction of minute histologic differences, brought out by an elaborated technic, and the clinical course of disease as it engrosses the attention of the busy practitioner—between bedside observation and laboratory studies—there is a divergence that tends to grow wider and more serious; a separate class of laboratory workers develops, and the minute study of pathologic changes is left more and more to them. The need for an intermediate department, "clinical pathology", begins to be felt and every influence is needed to bring about an integration of medical thought, without which specialization becomes disintegration.

It would be better for medical science, and better for our patients, if every physician regarded it as much a duty to make post-mortem examinations as to write prescriptions; and every surgeon studied with the microscope each piece of tissue he excised. The great advances

of modern pathology are not serving us as they should, because of the wide gap between the facts they deal with and the clinical phenomena that claim the attention of the practicing physician and surgeon. Every opportunity to bridge this gap ought to be utilized and one of the most important opportunities is furnished by the ophthalmoscope.

With the ophthalmoscope we examine living tissue under what corresponds to the low power of the compound microscope. The eye ground is usually seen by the direct method with a magnification of fifteen or twenty diameters—almost enough to see a single blood corpuscle against a sharply contrasting ground. The smallest arteries and veins, and even dilated capillaries, are within the limits of visibility.

Under this power we watch the changes in appearance which living tissues undergo in health and disease. Our studies are not confined to one condition, caught by a fixative at or after death, but extend over the whole cycle of life changes. Blood vessels and nerve cells and fibers, connective tissues and epithelial cells, are before us through all the many conditions of invading disease or returning health. To watch them throughout the course of these changes is in some ways as much superior to ordinary histologic observations even with the aid of modern instruments and methods, as serial sections are to the chance slices made with a razor from a piece of hardened tissue held in the hand.

To quote the words of Loring regarding the ophthalmoscope: "With it, it is like walking into Nature's laboratory and 'seeing the Infinite in action,' since by its means we are enabled to look upon the only nerve in the whole body which can ever lie open to our inspection under physiological conditions, and to follow in a transparent membrane an isolated circulation from its entrance into the eye through the arteries to its exit in the veins."

This feeling about the ophthalmoscope is not confined to a few enthusiastic specialists. Read the testimony of sober-minded physicians, surgeons and neurologists, Clifford Allbutt, Jonathan Hutchinson, J. Hughlings Jackson, and Sir William Gowers. They all, from their personal experiences, ascribe the highest value to the ophthalmoscope in giving them a broad definite comprehension of disease processes.

Nor is the educational influence of the ophthalmoscopic picture confined to a few medical philosophers with highly trained powers of observation. It has been my fortune to guide all sorts of medical students to such use of the instrument as gave them their first glimpse of the background of the eye. Bright or stupid, alert or indifferent, that first view has never failed to awaken an interest and enthusiasm that never touched them when looking at a specimen in a jar, or a slide under the microscope. Any method that can awaken lively interest in the observation of pathologic changes, as ophthalmoscopy does, is of priceless value in the educating of the medical student. We cannot afford to neglect any such educational resource.

The importance of ophthalmoscopy as a meth-

\*Read at the annual meeting of the Colorado State Medical Society, September 7, 8, 9, 1920.



od of studying general pathology may be illustrated by taking up certain details. Two very different vascular systems are thus open to our study; that of the retina is a terminal system closely resembling that of the brain or kidney. That of the choroid, visible in nearly all eyes toward the periphery and in many throughout the greater part of the fundus, is characterized by free anastomoses, among all sizes of vessels from the largest to the smallest. As regards the effects of angiosclerosis and vascular obstruction, the behavior of the two is absolutely different. In the retina the changes of high blood pressure and sclerosis are often traceable for many years and result in hemorrhage as a rule. In the choroid such hemorrhages are almost unknown. A similar tendency to hemorrhage is noted in retinal tuberculosis, where even limited portions of the retinal vessels become greatly dilated, and afterward slowly return to normal in the process of recovery. In the choroid no such dilation of the vessels or such marked tendency to hemorrhage seems to be noted.

It is interesting to observe that in tuberculosis the stage of hemorrhage occurs some time after visible changes have been going on in the retina. Hemorrhage is one of those "first symptoms" that indicate a long preceding pathologic process. But when it starts it is liable to recur again and again for years, until definite healing of the retinal lesions has taken place.

On the other hand the hemorrhagic tendency with arterial sclerosis is most marked early, before there is much thickening of the arterial walls. A patient may be practically blinded by the hemorrhage, calling attention to the tendency before much visible change has occurred in the vessel walls, and then live for years with progressive vascular changes, greatly thickened walls, tortuosity, irregularities of calibre, but with little or no recurrence of hemorrhage.

In the choroid hemorrhage is rarely seen. In its freely inosculating vessels the walls thicken and the process goes on to complete obliteration of the vessels' lumina without hemorrhage. These lessons from the vessels visible with the ophthalmoscope should be familiar to all medical practitioners, and should suggest a definite conception of what may be going on in vascular areas not visible in other parts of the body.

Another set of extremely interesting vascular changes is seen with the ophthalmoscope in some of the toxic amblyopias. Those that follow quinin poisoning are constant, striking and characteristic. During the early period of complete blindness the retinal vessels may appear quite normal. Then they gradually shrink until great narrowing constitutes a permanent record of the disease, although central vision has slowly returned even to normal. In this condition the capillary vessels of the optic disc seem to be almost obliterated, the disc remaining white. The optic disc may become and remain white, although the function of the nerve, temporarily lost as in retrobulbar neuritis, is later quite restored. The vessels of the disc belong rather with those of the choroid from which they spring, than with those of the retina with which they inosculate only sparingly.

Another pathologic condition of general interest is the deposit of albuminous exudates in the retina, first observed in connection with chronic interstitial nephritis in a more or less radiating figure in the macular region; but now known to occur in other conditions, and in other parts of the retina, and to be capable of complete removal, when the disease in which this occurs is capable of recovery. I have seen it most strikingly present in retinal tuberculosis and in retinal lesions following influenza. Retinitis circinata gets its name from the ring-like location of the exudate about the posterior pole of the eye.

The deposit is probably always secondary to more serious although less striking lesions. In the so-called albuminuric retinitis it is dependent rather on the vascular changes. In tuberculosis, influenza, etc., it occurs in parts of the retina situated near the principal lesions. In circinate retinitis the lesion that seriously and permanently impairs vision is in the macula, and the wreath of exudate is deposited around it. It is evident that these deposits, although constituting a most striking symptom, are only incidental to the essential lesion they accompany. The general conditions under which they appear and the general conditions under which they completely disappear, are a subject for careful thought.

It has long been recognized that such exudates in pregnancy have a very different significance from their presence in other cases of "albuminuric retinitis." They are extremely abundant in the toxemia of pregnancy, but may clear up entirely with full restoration of vision. Apparently in this case they arise from a general poisoning without any focal lesion in the eye that leaves a permanent effect.

Closer studies of the retinal changes in various kinds of anemia, by physicians watching the general condition of the patient, may throw important light on this class of obscure diseases. The retinal lesion is not merely a function of diminished hemoglobin, or lowered blood count. There is some other element that determines the intensity of the retinal lesions in the individual case; and these lesions may well be its most delicate and obvious symptoms.

Were the time at our disposal, instances like these could be indefinitely multiplied. It is the characteristic of the field of ophthalmoscopy that its possibilities have just begun to dawn upon us. Here is a book (Kollner's *Augenhintergründe bei Allgemeinkrankungen*) just received last week with nearly 200 pages of condensed statements of observations made with the ophthalmoscope, on changes in the eye ground in general diseases. Within the next generation the number of important conditions so recognized will certainly be doubled. Medical students are learning now to use the ophthalmoscope, and among them must be some who will use it especially to study the eye-ground changes of general disease.

In 1881 in his address before the seventh International Medical Congress in London the greatest of German pathologists, Rudolf Virchow, turned to ophthalmology for an illustra-



tion of the value of the accurate study of disease changes. He said, "Every ophthalmologist has the means in his hand to study the thing itself, and not its symbol. The invention of the ophthalmoscope made it possible without the knife to carry the method of anatomic analysis to the smallest section of the eye-ground, to even the single cell or cell-group, as in an artificially sectioned eye it can be studied."

The progress of medicine rests on the progress of medical education, and this consists, not in giving the under-graduate student only the wisdom of the Fathers, nor in crowding his mind with the innumerable discoveries of today; but in wisely selecting for him those facts and methods of investigation which are generally significant and applicable, the true fundamentals. Ophthalmoscopy is not merely a means of studying the pathology of the eye, it is a method, unrivalled, for coming in close contact during life with minute anatomic changes wrought by disease in the most important general tissues of the body. As such it must be recognized in the medical curriculum and used in training that is cultural, as well as in that which is practical. 318 Majestic Building.

#### DISCUSSION.

**Melville Black, Denver:** Probably, outside of the ophthalmologists, the medical men who are using the ophthalmoscope most are the neurologists. There are a few scattering men in general practice who use it. One reason, probably, why the ophthalmoscope has not been more extensively used is the difficulty in learning to use it. When we used the old instrument with reflected light, it took a long time to become proficient in its use. The eye ground was difficult to see, and a slight shifting on the part of the patient's gaze resulted in loss of the image to the observer. This need not be true now. The electric ophthalmoscope, which has almost replaced the instrument of reflected light, is very easy to learn to use. The difficulties which attended the use of the old are almost entirely done away with by the use of the new. Any man who will purchase an electric ophthalmoscope will be able to use it without any special instruction in a comparatively short space of time, and it is unfortunate that it is not more generally used than it is. There are many, I feel quite sure, who would like to avail themselves of a view of the vessels of the retina in many conditions where they suspect arterial sclerosis, especially in the beginning changes before grave changes have taken place throughout the body. Here is an opportunity that is offered nowhere else. The patients are constantly being referred to the ophthalmologists for an opinion, when it is within your hands to determine it for yourself. About fifteen years ago I read a paper before the American Medical Association upon a little test which is very easily applied. The study of changes of the vessels themselves requires a considerable amount of practice before you can see the changes which are indicative of arterial sclerosis. This little test I speak of does not require anything like so much experience. While gazing into the eye with the ophthalmoscope, one finger is used to make pressure upon the eyeball, raising its intraocular tension and through that causing direct pressure to be made upon the vessels. In young children, this pressure is very rapidly expressed in the veins by a blanching. You can actually see the caliber of the vessel become smaller; it is also true of the artery, but to a lesser extent. As life advances, the ability to do this gradually becomes less and less, and in old age there is very little response to this pressure, showing that the natural physiologic change of the body is towards a greater amount of resistance of the vessel wall, but there should never be a time in the life of any man when you should not be able to see some response to this pressure, provided arterial sclerosis has not advanced excessively; if you get no response whatever, it is an evidence of advanced sclerosis. In my refraction work, it has always been my custom to examine the eye grounds with the ophthalmoscope,

and in a large number of instances I have used this little test, and it is surprising to find the many cases of advanced arterial change which are picked up in this way. The use of the sphygmomanometer will show the blood pressure, and I have become so familiar with this little test that in the majority of cases I can prognosticate with a fair degree of certainty about what the general blood pressure is. What I want to emphasize is that the use of the ophthalmoscope is a great help in diagnosis, and all of you can learn to use it without any special instructions.

**G. A. Moleen, Denver:** As has been well stated, the ophthalmoscope in the hands of the neurologists perhaps is one of the most valued instruments. Aside from the ophthalmologist, it finds its greatest importance in the needs of the person devoted to the study of conditions in the brain. While the evidences revealed by ophthalmoscopic examination may point to system diseases in other parts of the body, it is very apparent that they can be no more of an index to any part of the body than they are to the conditions of the brain, to which the structures of the eye are so intimately related, as well as the vascular systems. The condition which has been spoken of by the last speaker, arterial sclerosis, would be robbed of a great deal of its terror if the brain could be excluded from its effects, and the examination of the vascular supply of the fundus oculi is a direct evidence of the condition of the blood vessels from which these effects proceed, and certainly is a most valuable guide in so far as the prognosis in high blood pressures is concerned. In the study of a great many of the degenerative diseases, the change in the optic disc, the diminution in the vascular supply, for example, points to a series of degenerative diseases in a way that clinical symptoms often fail to indicate, and serves to confirm what might otherwise be merely suspicions. I think the ophthalmoscope should not be limited to the use of the ophthalmologists and the neurologists, but the internist should also avail himself of the manifold revelations to be obtained through the use of this wonderful instrument, and especially, as Dr. Black has well said, in the modern instrument which is electrically lighted and so easy to manipulate if one only takes the time to practice in its use.

**A. C. Magruder, Colorado Springs:** The Colorado School of Tuberculosis lays a great deal of stress on the question of teaching its students the use of the ophthalmoscope, not only in conjunction with tuberculosis, but as a general routine measure for the internist, and we believe that this is going to be an important part of the teaching. To those of you who may desire to familiarize yourselves with the instrument, let me suggest that you get an ordinary frog and study the eye of that frog. First, you will be able to actually see the blood corpuscles as they pass out to the periphery through the arterial system and as they return to the venous system, a most interesting phenomenon, and I don't know anything that will stimulate the use of the ophthalmoscope more than the study of a frog's eye.

**Dr. Jackson, closing:** The value of the ophthalmoscope as an instrument of diagnosis begins to be appreciated, and will be better appreciated, if its value as a means of understanding pathology is better understood. The revolutionary change that has come in the study of medicine in the last fifty years, is a change from reading about diseases in a book, or listening to the story from eloquent lecturers, to training in seeing things with our own eyes in the laboratory and the sick room, in the post mortem room and in the museum. Here is one of these opportunities to see lesions—the actual hemorrhage in nerve tissue, the actual changes in the walls of a blood vessel; and no man can see them repeatedly without getting a new comprehension of diseases.

In another sentence, which I did not quote, Virchow refers to that influence which the ophthalmoscope had in placing ophthalmology at the head of the different branches of medicine. He lays it directly to the fact that the ophthalmologist directly sees the disease. He does not get the conception from a book, but the lesion is before his eyes.

**WHY NOT LOOK THROUGH THE ADVERTISING PAGES OF COLORADO MEDICINE AND SEE WHETHER SOMETHING YOU ARE NEEDING CANNOT BE ORDERED FROM A FIRM THAT PATRONIZES YOUR JOURNAL? SOME OF THESE ADS HAVE COUPONS FOR YOUR USE IN ASKING FOR SAMPLES.**



## THE RELATIONSHIP BETWEEN OCULAR AND DENTAL DISEASE.\*

WM. H. CRISP, M.D., D. OPH., F.A.C.S., DENVER.

There are still to be found eminent ophthalmologists who decline to believe that ocular inflammations may be caused by pathological conditions in or around the teeth; just as there are still unfortunately a goodly number of clever dentists who deny that dead teeth may be a source of danger to the body at large.

It is probably not more than six or seven years since most of us ophthalmologists first became wide awake to the importance of the teeth in the etiology of ocular disease. With the swing of the pendulum it may be that we have now gone to the other extreme. It is true that the removal of dental disease does not always lead to the cure of our eye cases. At the same time, when we are in doubt as to the causation of an obscure ocular inflammation, especially of the anterior segment of the eyeball, we ought to include the teeth in our investigation.

The eye tissues in relation to which focal infection in or around the teeth has been found most frequently productive of evil are the cornea, iris, and ciliary body. Perhaps the most useful way in which I can spend the time at my disposal will be in reciting briefly some of the cases which have come under my personal observation.

One of the most remarkable cases was that of an old lady seen for the first time in 1914, when she was seventy-nine years old. She had consulted Hermann Knapp, the famous New York ophthalmologist, in March, 1886. Knapp at that time recorded a diagnosis of chronic glaucoma, based on a history of "obscurations of vision, more in the morning, passing off during the day, and halo vision". This history, kindly recorded for me by Dr. Arnold Knapp, son of Hermann Knapp, made no note as to the sight or the visual fields at that time. When she came to me in 1914 her vision was 2-98ths in the left eye, and almost nothing in the right. For about thirty years this woman had had each year two or three attacks of inflammation, sometimes in one eye and sometimes in the other. In 1914 there was a good deal of opacity and irregularity of both corneas, and during the acute attacks the corneal epithelium presented a soggy, degenerated appearance, but there was not commonly any definite ulceration. She had been in Denver nearly twenty years, and stated that the vision had been pretty good when she came to Denver, so that the sight had been gradually lost with successive attacks of inflammation. In spite of the diagnosis of glaucoma made in 1886, the tension was never definitely high, and my subsequent experience proved that the diagnosis of glaucoma was erroneous, although apparently this diagnosis had constantly prevented resort to the use of atropin in treatment of the attacks. After feeling my way cautiously I did actually employ atropin in these eyes, with a lessening of discomfort, and without

any undesirable effect on the tension of the eyes.

As nearly as she could tell me, the upper right cuspid tooth had been filled in Philadelphia about twenty-five years previously. My dental friends assure me that this tooth might easily have been dying for five or ten years before that time. The history pointed to a chronic infection at the apex of the root. Upon my urgent request, in October, 1916, this tooth was extracted during an attack in the right eye which had already lasted several weeks. The root of the tooth was described as being green at the tip, like moss, and the dentist remarked that it was "enough to account for anything". The next day the patient stated that she had had the first night free from pain for a good while.

After removal of the tooth the eye rapidly quieted down, and the only further trouble was in the form of two or three mild attacks of irritation, without definite pain, after undue exposure to the weather, as during a ride in an open automobile. Although the patient was kept in touch with for two years after this time, there was no recurrence of the old marked attacks with their corneal involvement. While certainty is impossible, I am disposed to believe that this patient had suffered for about thirty years from attacks of keratitis, or corneal inflammation, due to a chronically infected tooth.

Some years ago I published an account of a case of apparently typical trachoma, treated as such for a number of years by competent eye surgeons, and which finally cleared up completely after surgical treatment of a pronounced intranasal deformity. In the last year or two it has been my privilege to see two patients who suffered from more or less typically trachomatous inflammation, and in whom the trouble cleared up rapidly upon removal of pronounced dental sources of infection. Each of these cases had thoroughly characteristic sago bodies on the tarsal surface of the upper eyelid, and a well developed pannus of the cornea. A case of phlyctenules in both eyes, with persistent irritation and tearing even after prolonged use of atropin, showed definite improvement within twenty-four hours after removal of a dead upper lateral incisor at the root of which was an abscess the size of the head of a hat pin. In a sluggish case of keratitis and uveitis, with blood vessels encroaching on the cornea, and a few minute spots on the anterior capsule of the lens, the patient obtained relief from pain one hour after extraction of two diseased roots, although atropin used for a number of days had failed to make him comfortable. In a similar case of two weeks' duration, and in which atropin had been used for one week, an obstinate tearing stopped almost immediately after extraction of a dead hollow left lower bicuspid tooth. In a man of seventy-four years whose left cornea had been injured by a foreign body with a resulting soggy infiltration of the cornea, but without definite ulceration, and after three days of only slight advantage from the use of atropin, pain practically disappeared and rapid improvement began a day after the extraction of seven dirty old roots.

A man of thirty-nine years recently came to

\*Read before the Medical Society of the City and County of Denver, December 16, 1919.



me with multiple ulcers on the margins of the left upper and lower eyelids. These ulcers, which were for the most part just posterior to the eyelashes, were shallow, and had slightly raised reddish borders. The condition had already gone on for three days, and there was no definite improvement after three days of vigorous treatment which included the use of atropin, antiseptics, and chemical cauterization of the ulcers. Definite improvement began two days after the removal of four dirty old stumps, and two weeks after extraction of these stumps the patient volunteered the information that he felt generally a great deal better than for some time.

A woman of fifty-six years had for eight or ten months been troubled on and off with irritation of the left eye, with blurring of vision, only slight aching, and a fair amount of redness, which however had disappeared from time to time. She had been for some time under the care of an oculist in another city, who had since entered the army. At the lower border of the left pupil was a more or less spherical growth of two millimeters diameter, with a grayish, diffused surface, and forming the center of a very solid adhesion of the iris to the anterior capsule of the lens. Three years previously she had had ten teeth crowned by a Denver dentist, the nerves of all of these teeth having been killed by the dentist. Very moderate benefit resulted from the use of atropin, but the eye was definitely whiter, and the granuloma thinner and paler, about two days after the extraction of several badly abscessed teeth. The condition steadily cleared up and the granuloma became entirely absorbed in the course of the next twelve days. This patient had only the worst of her teeth removed, being anxious to save some that were under suspicion but not definitely diseased. A month later she developed another, very minute granuloma at a different point of the same pupil, but this readily disappeared under the use of atropin for a few days. The patient was not heard from again for more than seven months, at the end of which time a neighbor reported that she had been entirely free from trouble in the interval.

It is my belief that in a number of these cases refractive strain has played a part in favoring the localization in the eye of the infection which was floating in the circulation, just as it has been my experience that mild attacks of streptococcal conjunctivitis after a streptococcal sore throat or rhinitis are more likely to develop in eyes which are under strain from refractive errors. I have omitted to mention a number of cases in which the teeth probably played a part, but where the clinical evidence was less distinct than in those which I have described.

It is advisable to bear in mind the possibility of a dental factor even in some cases in which we are already apparently provided with an adequate explanation for the eye disturbance. In a severe case of blasting injury to the eyes, kindly demonstrated to me a year or two ago by the patient's oculist, very marked diminution of a distressing tearing of the one eye which had been saved, and in the cornea of which a number of rock particles were imbedded, was ob-

tained from the treatment or removal of some defective teeth. A year ago I was consulted, with a view to a cataract operation, by a man of sixty-two years whose other eye had been operated on in Wyoming for the same purpose a year previously. A painful inflammation starting soon after this operation had led to complete loss of sight. The eyeball had been split crucially back as far as the equator, and was shrunken. There was a chronic discharge from this eye. The patient was referred to a dentist for treatment or removal of a number of very rotten teeth and stumps. The discharge from the lost eye rapidly diminished and disappeared, and did not return; there was very little hesitation in the healing of the right eye after extraction of its cataract; and a good operative result was obtained in this second eye.

530 Metropolitan Bldg.

### MASTOIDITIS IN ACUTE OTITIS MEDIA.\*

WM. C. BANE, M.D., DENVER.

Inflammation of the mastoid cells is nearly always secondary to otitis media, the infection extending from the middle ear through the aditus ad antrum. The infection usually reaches the middle ear by way of the oto-pharyngeal tube. The antrum is practically a part of the middle ear, the two having been termed the antro-tympanic cavity. The extent of the infection in the mastoid in the beginning depends upon the anatomical relations and patency of the channels to the various cells from the middle ear through the antrum; upon the early establishment of efficient drainage; upon the nature of the infection; and upon the resistance of the patient re-enforced by local and constitutional measures.

In the early stage there is a congested and infiltrated condition of the mucous membrane of the antrum and cells, corresponding to or following similar changes in the middle ear. A serous exudate is deposited in the cavities, which changes to a muco-purulent or purulent exudate in from one to four days, dependent in part upon the activity of the inflammation, and the type of the micro-organisms producing the infection. In the later stage there occurs osseous necrosis or softening, and there is a wide range in the time of development of destructive changes sufficiently dangerous to warrant operative interference. This period varies from a few days to weeks. In the early stage pus will be found in the antrum and a cell here and there, especially the tip cell, if the channel to it is pervious, and the intervening septa are intact. As time passes, other cells become filled with pus and granulation tissue, and finally the intercellular bone substance softens from lack of nutrition and disintegrates. The outer and inner plates are at times found necrotic in the later stages. Necrosis of the outer plate is more common in children, and of the inner plate in adults. In a small percentage of cases a perforation occurs in the lower and inner surface

\*Read before the Colorado Oto-Laryngological Society December 4, 1920.



of the tip cell, producing the so-called Bezold type, the pus accumulating beneath the muscles attached to the tip.

Symptoms indicative of mastoiditis are manifest in some patients very early in the course of an acute otitis media and in others not for several days or weeks. Certainly in practically all patients with active otitis media there co-exists the same inflammatory process in the antrum. Deep seated pain in and radiating throughout the side of the head from the mastoid is the most constant symptom of mastoiditis. The pain varies in different individuals. In some the pain is accompanied with marked tenderness to pressure over the antrum and cells owing to the existence of large pneumatic cells and a thin cortex. Again the cortex is so dense in some patients that firm pressure will scarcely cause the patient to wince. Some patients with active mastoiditis have but little pain yet complain of a sense of fullness and discomfort. Associated with the pain, as a rule, is more or less insomnia. It is a common observation that in addition to the dull pain, there occur severe darting pains indicative of involvement of additional cells, the pain being due to distension. In some patients with well advanced necrosis the pain and tenderness will be almost nil.

Elevation of temperature is usually present, especially in the after part of the day, during the suppurative stage, due to absorption of the toxins. Adults do not show as much elevation of their temperature as children. High temperature in adults is indicative of serious complications. A temperature of 103° or 104° F in young children is not unusual and may go higher. However a continued high temperature in a child would indicate a possible complication, as pneumonia. Again we not infrequently see cases of well advanced mastoiditis or so-called mastoid abscess with little or no elevation of temperature, so that only as taken with other symptoms does elevated temperature in adults have much significance.

It is always desirable to have a culture and examination made from the discharge to know what organisms are present. It is also of value to have a white blood count made, as a marked elevation of the leucocytes with an increase of the polymorphonuclear type is especially important in diagnosis. A muco-purulent discharge persisting well on into the second and third weeks, associated with more or less pain and tenderness in the mastoid, and a feeling of malaise is a strong indication of well advanced mastoiditis with pus in the cells. With a sudden diminution of the discharge and an increase of the other symptoms of mastoid abscess, there being a free opening in the drum head, the indications are quite positive for operative interference. The drum-head is generally dull, thickened, and more or less congested, and moderately bulging. The mucous membrane of the middle ear is thickened and in some cases there are granulations in the middle ear producing bulging of the drum-head and obstructing drainage. In a goodly percentage of cases the sagging of the postero-superior

canal wall is observed, indicating bone involvement.

Inflammatory thickening of the tissues over the mastoid is occasionally seen, meaning that the disease is extending outward and perforation of the cortex may soon take place. In children subperiosteal abscess often occurs. Occasionally the first evidence in a child of ear and mastoid involvement is edema over the mastoid. Transillumination of the diseased mastoid by a small lamp either through the mastoid into the canal or vice versa, is desirable in all cases. Likewise an x-ray examination to reveal the extent of the disease and the cells involved. In some cases an x-ray plate will enable one to determine the probability or not of the disease clearing up without operation. A large majority of the patients with acute mastoiditis, if seen early and properly treated, will recover without operation. A small percentage come to operation in spite of competent care. Edema of the aditus ad antrum, interfering with drainage of the antrum and cells would seem to account for the persistent inflammation in the mastoid in some patients. The percentage of deaths in operated cases is very small, perhaps not over two percent.

#### Treatment:

Every conscientious aurist aims to bring about recovery of his patient without operation. A mastoiditis developing with or in the course of acute otitis media calls for drainage of the tissues. First by free incision of the drum-head and withdrawal of the exudate. Then continuous drainage. If the pain is very acute, persistent and of a throbbing character, additional local depletion is indicated. The application of the artificial or Swedish leeches will give marked and lasting relief, notwithstanding the opinion of some authors to the contrary. In the hyperemic stage, ice poultice used early and continuously for twenty-four hours will limit the congestion and reduce the pain. If the pain and fever have been markedly reduced, the ice may be continued at intervals for the second twenty-four hours, otherwise it should be omitted lest it mask these symptoms.

Patients with mastoiditis had best be kept quiet in bed most of the time, thus keeping the circulation quiet and conserving their energy and resistance. This is especially important with patients having influenza. The circulation may be kept quiet by small doses of aconite, while the pain may be modified, the temperature reduced, and the skin kept moist with moderate doses of acetyl-salicylic acid. Drainage from the middle ear may be encouraged by use of the suction speculum or suction irrigation. The ordinary irrigation is of little or no value. I prefer the cotton pencil drains, frequently changed, every fifteen minutes if necessary, to keep the opening in the drum head free from accumulations. To favor drainage it is of some advantage to lie on the side of the face opposite the ear involved. Reincision of the drum head may be required every third or fourth day to maintain free drainage. Many cases have come to operation merely by neglect to maintain proper drainage, the opening in the drum-head be-



ing inadequate. So long as the drainage is free, of a serous character, gradually diminishing in quantity, and at the same time the tenderness in the mastoid less marked, resorption of the inflammatory products may be anticipated, even though a week or ten days have elapsed. When one or two weeks have passed and there exists a muco-purulent discharge of such quantity that it is evidently coming from the mastoid, and at the same time the mastoid tenderness has not diminished, an operation may be anticipated. In cases of streptococcus capsulatus or pneumococcus infection, bone necrosis is quite certain to take place. There is a principle in surgery that applies to mastoid operations, and that is, to refrain from opening a furuncle, boil or abscess, until nature has walled it off, and is ready to evacuate the pus. Once nature is ready, the quicker aid is rendered the better. To make haste and open a mastoid in the congestive stage is to submit the patient to unnecessary risk of general infection, and to sacrifice tissue that should be preserved.

If the following conditions develop, they may be regarded as positive indications for mastoidectomy:

1. Postauricular edema and subperiosteal abscess.
2. Positive tenderness on pressure over the mastoid of one or two weeks duration after ample drainage has been established, provided at the same time transillumination and x-ray reveal evidence of mastoid abscess.
3. Where mastoid symptoms have been positive, and have disappeared, but the discharge from the middle ear persists in spite of all local measures and vaccines, confirmed by x-ray examination if obtainable.

A mastoid operation is performed for the safety of the patient. The danger is not in the operation, but in the delay when the operation is positively indicated.

330 Metropolitan Building.

**YOUR INTENTION TO READ A PAPER AT THE NEXT ANNUAL MEETING MAY BE INDICATED NOW TO GEO. A. MOLEEN, CHAIRMAN, MACK BLOCK, DENVER, COLO. SUBMIT TITLE AND A SHORT SYNOPSIS.**

## News Notes

Dr. Philip Hillkowitz of Denver returned from a trip to Cincinnati February 2.

Dr. C. D. Spivak of Denver has resumed practice with offices at 556 Metropolitan building.

Dr. Joseph C. Savage of Denver, following a post-graduate course in pediatrics at Harvard University, has become associated with Dr. F. P. Gengenbach in the Pediatric Clinic of Denver.

Dr. B. M. Steinberg of Denver, would like to share office facilities with another doctor for a few hours each day.

Dr. Frank Rogers of Denver has recently re-established offices in Denver at 802 Majestic building for the practice of general surgery.

Dr. J. E. Cavey and Miss Florence Bradley, both of Stratton, were married January 25, at the residence of Dr. and Mrs. W. W. Grant, Denver.

Dr. Mary Reed Stratton of Denver has announced change of office from 302 Majestic building to 802 Majestic building.

A physician and surgeon, recently located in Denver, conversant with Italian, would like a partnership or assistantship with a busy practitioner, surgeon or other specialist. Information may be had from the editor.

Colorado Springs is to have an office building devoted exclusively to physicians and surgeons through the remodeling of the Ferguson building. It is expected that it will be ready for occupancy March 1.

Dr. T. E. Carmody of Denver, who left on January 20 for Ashville to take part in the program of the Southern Section of the American Laryngological, Rhinological and Otological Society, was called back from a subsequent trip to Florida because of the illness of his associate Dr. M. D. Brown. Dr. Brown came down with diphtheria February 3. He is reported to be doing nicely at the time this is written.

Dr. R. L. Drinkwater of Denver, who suffered a severe hemorrhage from duodenal ulcer on January 10th, although convalescing, is as yet unable to attend to his practice.

The Colorado State Grange has gone on record as being in complete sympathy with the State Hospital and Medical School bill.

Dr. D. O. Norton of Fort Collins was married on January 15 to Miss Edith Andrews of Denver.

Dr. A. E. Smith, formerly of Glenwood Springs and Rifle, has removed to Grand Junction where he will practice medicine and surgery at room 8, Reed block.

According to press notices the federal government is to discontinue the free distribution of anti-rabies vaccine to state, county and city health departments.

Of the newly elected staff of Mercy Hospital, Denver, Dr. Geo. A. Moleen is the new president and Dr. Harry Brown has been re-elected secretary.

Dr. Melville Black of Denver, who was operated on in January for chronic appendicitis, has had an uninterrupted convalescence. He left Denver February 5, expecting to sail for Honolulu on the 9th.

Mrs. A. G. E. Nordlander, Box 272, Boulder, has for sale the office equipment and practice of Dr. Nordlander, deceased, which will be sold for less than the office equipment inventories.

There will be a reorganization meeting of the Alpha Kappa Kappa medical fraternity, 8 p. m., Friday, February 25, at the office of Dr. C. Howard Darrow, 520 Metropolitan building. All A. K. K.'s are cordially invited and urged to attend.

Dr. W. A. Jolley, formerly of Boulder, has requested a transfer of membership from Boulder County Medical Society to the Philadelphia County Medical Society. His address is 301 E. Lancaster avenue, Wayne, Pa.

The new list, now ready, of Abbott, pharmaceuticals and medicinal chemicals will be sent free on application to the Abbott Laboratories of Chicago.

### El Paso County News.

Dr. G. B. Gilbert has returned from a trip to California.

Dr. L. H. Beck and wife have gone to California for a visit of two months.

Dr. M. O. Shivers has returned from a visit to the Mayo Clinics.

Dr. L. H. McKinnie attended a meeting of the Western Surgical Association in Los Angeles.

Dr. W. V. Mullin and family have gone to California for a vacation.

Dr. S. W. Schaefer has returned from a visit to his old home in Mississippi.

Dr. H. R. Shands has gone to Jackson, Miss., for the winter.

Dr. A. H. Peters has been re-elected county physician of El Paso county.

Dr. C. E. Richmond has returned from a visit to St. Louis.

### Pueblo County News.

Dr. F. M. Heller underwent an operation at St. Mary's Hospital last Sunday, and is reported doing nicely at this writing, January 20.

Dr. and Mrs. Joseph F. Snedec are rejoicing over the arrival of a new baby girl.

Dr. and Mrs. R. R. Taylor are celebrating the birth of R. R. Jr.

St. Mary's Hospital of this city will soon be on the list of standardized hospitals, and the profession as a whole are doing everything in their power to bring it up to the standard of the American College of Surgeons.

### DEATHS.

Dr. Charles Alonzo Ferris of Denver died on Tuesday, February 1, 1921. Dr. Ferris was born in Saginaw, Michigan, in 1870, came to Colorado in 1894 and graduated from the Gross Medical College in 1901. He practiced for some time in Georgetown, and then located in Denver, where in late years he has limited his practice to obstetrics



and gynecology. Dr. Ferris was affiliated with a number of local medical societies as well as with the Colorado State Medical Society and the American Medical Association. He was also active in Masonry and was a Knight Templar and a Shriner. The cause of death was tumor of the brain.

#### American Congress on Internal Medicine.

The fifth annual session of the American Congress on Internal Medicine will be held at Baltimore, Md., week of February 21-26, 1921. The activities of the Congress will be largely clinical. Ward-walks, laboratory demonstrations and group or amphitheater clinics will be conducted daily by members of the medical faculties of the Johns Hopkins and the Maryland Universities. Further information may be secured by addressing the Secretary General, 1002 North Dearborn street, Chicago, Ill.

## Medical Societies

### BOULDER COUNTY.

**Boulder County Medical Society** held its annual meeting for election of officers on January 13, 1921. The following were elected: President, H. C. Dodge; first vice president, R. K. Groom; second vice president, W. L. Snair, Louisville; third vice president, C. W. Poley; secretary-treasurer, W. K. Reed; reporter, M. L. Johnson; delegates to state convention, Carbon Gillaspie and C. E. Giffin; alternates, G. H. Cattermole and C. L. La Rue.

January 25, the meeting was devoted to clinical cases. C. E. Giffin presented reports of two cases, illustrated with x-ray films: "Syphilis of the Lungs" and "Tuberculous Deformity of the Tibia."

O. M. Gilbert presented a report of a case of ulcer of the stomach, also illustrated with x-ray films.

Robert Groom presented two case histories of influenza and typhoid in a very interesting and puzzling combination. One of **influenza** in which typhoid was suspected and one of **typhoid** in which a tentative diagnosis of influenza was made.

**Case I.** Mr. W., age 40, married, living north of Boulder, was seen October 28, 1920. Complained of headache, sore throat, slight pain in back and limbs, fever.

Past history of no importance except that he had had severe typhoid ten years previously in which the culture and Widal test were both positive and which Dr. J. N. Hall pronounced a typical case. Since then had been strong.

Present illness began two days previous with headache when arising in the morning, slight chill, sore throat, unproductive cough. Assuming that he had tonsillitis, the patient went to bed, gargled his throat two or three times a day with salt solution and took a cathartic. He had three or four 5 gr. aspirin tablets a day with very little relief. Headache became more severe, cough increased with some white mucous expectoration.

Physical examination: Well nourished and developed man about 40, T-102.4, P-88, R-20, pupils and reflexes negative, throat injected and red, tonsils swollen, no patches, heart and abdomen negative. Lungs negative except for slightly roughened breathing in left lung below and posteriorly. Patient was given acetanilid compound gr. 5 for pain, salt solution gargle every 2 hours, sodium salicylate gr. 7, sodium bicarbonate dr. 1, every 2 hours, until ears rang. Diagnosis of "grippe" or influenza was made.

Salicylate relieved the pain, but while the patient was comfortable, his condition did not improve. Two days later some consolidation was made out in the left back and there was a slight blood tinge to the sputum. A pneumonia jacket was put on and mustard plasters to chest, front and back, night and morning. Patient's condition gradually improved and by the time the left lung seemed clear there was a rise of temperature with a recurrence of the chill and a broncho-pneumonic spot was made out in the right base. On the advice of a consultant, the patient was started on Mulford's influenza serobacterin .2 cc. Within twelve hours there was a rise of two degrees in temperature but this subsided in twelve more hours and the condition seemed slightly improved. Treatment was repeated every three days. On the eleventh day three typical rose spots appeared on the abdomen, two days later a second crop of three rose spots. Widal was taken which was negative. Condition improved. Diagnosis of in-

fluenza was still held. A few days later a fresh area of pneumonia was made out in the right upper lobe. Following this, patient developed pericarditis with definite pericardial friction. A week later fluid was diagnosed in the right pleural cavity. On aspirating, 4 cc. of bloody serous fluid was obtained which was sterile. Patient was given leucocytic extract 2 cc. each day, salicylates and digitalis continued, with gradual recovery.

**Blood Examination:** White count when first seen was 14,000, poly's 78 percent gradually decreasing to 11,000 and 8,000; increasing again with the spot of pneumonia in the right to 11,200, poly's remaining 70 percent to 78 percent. Widal on the fourteenth day, on the twenty-first day, and at the end of the ninth week remained negative.

**Case II.** Mrs. W., wife of Case 1, December 12, 1920, complained of lassitude, some headache, sleeplessness, slight increase in temperature. Two days later headache was more severe and throat was sore. Little was thought of her condition at first, as she has been under our care for the past five years off and on and is known to be neurotic. However, on the fourteenth her temperature had risen to 102° and there were slight breath changes in the root areas of both lungs. She also complained of severe pain in the abdomen which was attributed to her menstrual period and was relieved by hot enema and heat locally. A diagnosis of influenza was made, patient was treated with salicylates and sodium-bicarbonate. Temperature gradually rose from 102.8° to 103.6°, with a morning reading of 100° to 101°. On December 26 the sputum was blood tinged and there were fairly marked signs of broncho-pneumonia probably of influenzal origin. Pneumonia jacket and mustard plasters were applied. December 26, patient had a chill and temperature rose to 104.4°.

Physical examination on entrance to hospital: R-28, P-120, T-104°. Chest: Slight dullness and bronchial breathing in right posterior root area, fine râles in same, occasional blood tinged sputum. A few rose spots on abdomen and back of buttocks. December 29, 1920, patient still complained of abdomen, which was tense and slightly distended, there was some difficulty and pain on voiding, slight rigidity of neck, excruciating pain on raising head, knee jerks unobtainable, Kernig's sign positive in left leg. Atypical rose spots on back, typical ones on abdomen, Widal negative. Blood cultures positive for typhoid. Course from now on fitted in very well with the laboratory findings except for the pneumonic area and blood tinged sputum which gradually cleared.

January 5, 1921, neck condition clearing, tongue still coated and dry, abdomen less distended, spleen not palpable, no more spots on abdomen and back, slight dullness, a number of coarse crackling râles. Scapular angle, fluid suspicion in right back.

January 10, 1921, intestinal hemorrhage, one pint, general condition good. Since then patient has been making good progress and is now convalescing.

Laboratory findings at beginning of illness: Blood count was 7,200, gradually decreasing until January 10, 1921. Total count 2,500. Poly's ranged from eight-two percent at beginning to fifty-nine percent, large mono's increasing from one percent to fifteen percent. Blood cultures on December 29, 1920, positive. Other organisms were only slightly motile. Strains on lactos and dextros would not ferment, conclusion typhoid. Urine cultures showed unidentified bacillus not same as blood cultures. Widal, January 10, 1921, positive.

In Case I, typhoid was suspected because of the rose spots, long continued fever, and the fact that we had other typhoid cases in town. In Case II, influenza was suspected because of history, chest signs and the fact that the husband had influenza.

In the latter part of December two cases in children of broncho-pneumonia also showed a few very typical rose spots on abdomen but ran the typical course of abortive type pneumonia.

M. L. JOHNSON, Reporter.

### COLORADO OPHTHALMOLOGICAL.

The regular meeting of the **Colorado Ophthalmological Society** was held in the assembly hall of the Medical Society of the City and County of Denver on December 18, 1920; Dr. C. L. La Rue presiding.

W. C. and W. M. Bane, Denver, presented a woman who had suffered loss of vision, with pain and photophobia, and in whom, although x-ray examination of the nasal sinuses was negative, suspicion attached to these sinuses. Discussed by



Melville Black, Edward Jackson, W. C. Finnoff, and G. F. Libby.

W. C. and W. M. Bane, Denver, presented a man both of whose crystalline lenses were dislocated downward, and who attributed this condition to injuries received during the tramway strike in August, 1920. Discussion of this case related to the uncertainty as to whether the condition was congenital or the result of injury.

E. F. Conant, Denver, presented a man who on November 3, 1920, had received a violent blow on the left eye from a champagne cork. There had probably been a rupture of the sclera, and the upper part of the iris was displaced beneath the sclera. In this eye also the lens was dislocated downward. This case and that of Drs. Bane were discussed together by Melville Black, Edward Jackson, W. H. Crisp, and W. C. Finnoff.

W. C. and W. M. Bane, Denver, presented a man whose right lower lid margin showed a small carcinomatous ulcer, which had replaced a wart. Discussed by Melville Black, Edward Jackson, and C. E. Walker.

Melville Black, Denver, presented the patient upon whom operation for extraction of a dislocated lens had been reported by J. M. Shields at the previous meeting. Discussed by W. H. Crisp and C. E. Walker.

W. C. Finnoff, Denver, presented a woman who during the past year had had a number of attacks of transitory blindness, partial relief from which had finally been obtained by opening of the nasal sinuses. Discussed by Melville Black, W. A. Sedwick, and W. C. Finnoff.

G. L. Strader, Cheyenne, Wyoming, presented a man in whom excellent repair of an extensive lacerated wound of the cornea had been obtained by the use of a large sliding conjunctival flap. Discussed by E. R. Neepser.

D. A. Strickler, Denver, presented a woman aged 35 years, the vision of whose right eye had in the course of a few days fallen to 20-200ths, although the examination of the background of the eye was almost negative. The disturbance was probably due to multiple focal infection involving the teeth and the nasal sinuses. Discussed by W. C. Bane and Melville Black.

WM. H. CRISP, Secretary.

#### CITY AND COUNTY OF DENVER.

The regular meeting of the **Medical Society of the City and County of Denver** was held January 18, 1921. Dr. T. E. Carmody presided.

The secretary read the minutes of the last meeting, and read the list of names proposed for membership—Dr. B. M. Steinberg and Dr. S. Uji.

No report from the Board of Censors.

Dr. Carmody announced a lecture by Lincoln A. Steffins on "Conditions in Russia."

Presentation of patients:

Dr. Geo. B. Packard, Jr., presented a boy of nine years with sarcoma of the upper end of left femur, the condition following trauma four months ago; has been treated by injections of Coley's fluid, and the condition apparently has been arrested and very much improved. Discussed by Drs. Miel, Elder, Stephenson, and Hegner, and by G. B. Packard, Jr., in closing.

Dr. Edward Lazell presented a case of suspected tuberculosis of the spine. Discussed by Dr. Robert Packard and by Dr. Lazell in closing.

Dr. W. C. Bane read a paper on "Mastoiditis in Acute Otitis Media." Discussed by Dr. Beers, Dr. M. D. Brown, and Dr. E. F. Conant, and Dr. Bane in closing.

Dr. J. W. Amessee read a paper entitled "Unusual Complications and Sequelae in the Acute Contagious Diseases of Childhood Following the Late Influenza Epidemic." Discussed by Dr. Peterson, Dr. Tracy Love, Dr. H. L. Hickey, and by Dr. Amessee in closing.

J. M. SHIELDS, Reporter.

#### EL PASO COUNTY.

The regular monthly meeting of the **El Paso County Medical Society** was held in the Parish House of the Grace Episcopal Church Wednesday evening, January 12.

The annual reports of the Secretary and Treasurer were read, and officers for the ensuing year were elected, viz: President, G. B. Gilbert; Vice President, E. L. Timmons; Secretary, C. E. Richmond; Treasurer, O. R. Gillett; Delegates, C. R. Arnold, F. L. Dennis, and D. P. Mayhew; Alternates, Charles Giese, G. A. Boyd, and A. H. Peters.

Dr. Gilbert appointed the new committees for the year.

Much of the time was spent discussing a home

for the society, but nothing definite was decided upon.

The following resolution was adopted:

"Whereas, Death has removed the steady, dependable, faithful and progressive Dr. John H. Ferguson.

"Be it resolved that the El Paso County Medical Society hereby certifies to the deprivation it has sustained in the death of Dr. Ferguson and extends its sympathy to and shares its sorrow with his dear and loved relatives in this time of their affliction. He embodied the kindly virtues of a reliable physician. He was a friend as well as physician to many. The conscious value of work well done was worth more to him than monetary considerations. He died in the harness. His loss is felt by all who intimately knew him as fellow physicians and by all who learned to trust him for guidance in medical matters, and that loss will be noted for a long time to come.

"Be it also resolved that a copy of this record be spread upon the minutes of the El Paso County Medical Society and a copy sent to his bereaved relatives.

"Signed: T. G. Corlett, T. R. Knowles, J. H. Brown."

Dr. Ernest Dryer and Dr. C. Pace were elected to membership.

In December the Society listened to an interesting talk given by Mr. Harwood Fawcett on "Fake Medical Advertising."

Following Mr. Fawcett's talk the members of the Society voted to conduct a campaign to eliminate fake advertising so far as possible.

Dr. Gillett was appointed as representative of the El Paso County Medical Society to act with the Chamber of Commerce in advertising fake advertising schemes.

Dr. Charles Meader, dean of the Medical School of the University of Colorado, outlined to the association the plans for expansion and enlargement of the State Medical School.

Dr. Giese moved that the chair appoint a committee to further the state medical school and state hospital bill if such a bill comes before the State Legislature at the coming session. Adopted. Dr. Giese was appointed chairman of this committee.

C. E. RICHMOND, Secretary.

#### FREMONT COUNTY.

Regular meeting of the **Fremont County Medical Society** was held January 24th 1921, in Dr. V. A. Hutton's office, Florence.

Dr. V. A. Hutton reported a case of chronic nocturnal spasm of the muscles of the neck in a thirty year old male caused by an impacted wisdom tooth and with diagnosis verified by x-ray, with exhibition of the film. Complete cure effected by removal of the tooth.

Dr. L. E. Rupert reported a case of small ventral hernia causing symptoms of abdominal cancer.

Dr. F. R. Moore recited in detail a case of carcinoma of the stomach with secondary involvement of the head of the pancreas in a man of forty-one years.

Dr. R. E. Holmes gave his recent experience with a case of angina pectoris in a female, aged forty-four years, lasting several weeks with sudden death following a day of freedom from pain. Wassermann was negative. The primary infection was probably in the gall bladder, followed by secondary infection of the circulatory system. X-ray showed an involvement of the aorta. Cough was a constant symptom of this case. In discussion, Dr. E. C. Webb cited his experience with a female aged sixty-five years who has a large aortic aneurism clearly demonstrated by the x-ray and attended for a long time with the usual symptoms but which has so far recovered under no treatment that the patient is apparently in perfect health as far as symptoms are concerned. In the general discussion of the subject of aortic aneurism the opinion of Dr. Holmes that these cases are not always due to syphilis was verified.

Dr. V. A. Hutton has at present a female patient age ninety-six years, who developed symptoms of pneumonia three days ago and on the following day had two abdominal hemorrhages and is now recovering, and no diagnosis was made.

Dr. R. C. Adkinson exhibited an x-ray plate showing the spine of a twelve year old boy who for several years had continual pain in the back and a rigid gait. The picture showed a wedge-shaped third lumbar vertebra, verifying a tentative diagnosis of tuberculous spondylitis. There was no history of pulmonary tuberculosis.

Dr. Otis Orendorff gave an experience with two foreign body cases now under treatment. One, of a piece of steel in the eye of a young adult which



caused no pain or trouble the first day; the second day, blurring of vision and slight pain; on the third day there was loss of vision, severe pain and intense inflammation. The steel was removed by enlargement of the wound, which was in the region of the insertion of the internal rectus, and the introduction of the tip of a giant magnet. The other case was that of a large grain of popcorn pushed into the external auditory canal in a three year old child and forced through the membrana tympani by the efforts of the mother at removal with a hairpin. This was accompanied by severe and continued hemorrhage which made the treatment difficult. Under ether anesthesia small pieces of the foreign body were pinched off with forceps until it was reduced in size sufficiently to be removed with a delicate hook. The canal was then sterilized with pure alcohol and left open and the patient returned to the care of Dr. Hutton, who tonight after four days observation states that the patient developed no complications and has returned home.

The old officers were re-elected for the ensuing year, viz: R. C. Adkinson, Florence, president; C. H. Wilkinson, Cañon City, vice president; Otis Orendorff, Cañon City, secretary-treasurer; R. E. Holmes, Cañon City, delegate.

The amendment relative to the time of meeting and filed on November 22nd, 1920, was unanimously adopted, this changing Section III to read:

"The regular meeting shall be held on the fourth Monday of each month throughout the year, excepting when a vacation period is voted by the Society during the summer months. Further that the place of meeting shall alternate between Cañon City and Florence, as designated by the secretary in call."

The books of the secretary-treasurer were audited by a committee consisting of L. E. Rupert and W. T. Little and were found correct. After adjournment the Society enjoyed an informal dutch treat at the café.

OTIS ORENDORFF, Secretary.

#### HUERFANO COUNTY.

The Huerfano County Medical Society held its regular monthly meeting January 25 in the office of Dr. Durnell.

Dr. Ira B. Lahmer was re-elected president; Dr. S. J. Lamme was elected vice president, and Dr. Durnell was re-elected secretary-treasurer.

Doctors Trout and Andrews were elected delegates to the state society meeting to be held at Pueblo.

Dr. T. L. Eyerly of Tioga was elected to membership in the association.

The annual banquet will be held as soon as the committee, composed of Drs. Andrews, Mathews and J. M. Lamme, have had time to make their report as to time and place.—Press report.

#### PUEBLO CLINICAL AND PATHOLOGICAL.

The regular monthly meeting of the **Pueblo Clinical and Pathological Society** was held January 10th, at 7:00 p. m., at which time twenty-five members gathered around the festive board.

As no business can be transacted except at the annual meeting, the Society proceeded after the "eats" to the clinical program as outlined below:

##### Operation on Gasserian Ganglion Root for Tic Douloureux.

Dr. Crum Epler presented the following clinical case, with exhibition of the patient:

J. B., age 50, occupation mattress maker.

For the past twelve years has had varying degrees of pain in the right side of the face, varying all the way from a neuralgic pain to one of true tic. For the first two years it seemed to be only of a neuralgic type, and it had oftentimes been diagnosed as such by physicians. This pain involved fairly well the distribution of the ophthalmic branch of the trifacial. From that time on the disease became progressively worse, first involving the maxillary branch, and for the past three years has involved all branches of the trifacial, and the **paroxysms** have become much more severe and more frequent in periodicity. He had been advised that it was due to his teeth, and they had all been removed some two years ago, with but little or no relief. He was referred by his dentist to Dr. Peirce for possible sinus trouble; his sinuses were found to be normal, and the doctor, recognizing this case as one of a neurological nature, referred him to Dr. Philip Work, who diagnosed it as tic douloureux, and referred the case to me for operation.

The operation of choice was severance of the posterior root of the gasserian ganglion.

The method of operation is to make an incision beginning eight cm. above the external auditory canal, extending downward and forward to the zygomatic process at its junction with the temporal bone; dissect one cm. forward along the zygoma and separate down to the periosteum, and retract with a self retaining retractor. The next step is to make the trephine opening through the temporal bone, and with forceps enlarge this down to the plate; stop all hemorrhage and then with sponge dissection and elevator raise the dura, propping it up on each side with especially prepared sponges; when the middle meningeal artery is encountered it is to be tied and cut; then continue elevation of the dura until the gasserian roots are noted; when this is done the clear glistening pulsating membrane covering Meckel's fossa is noted. Open this membrane and when the fluid has been mopped away, and the meninges held apart, the posterior root is plainly in view; this root is then severed, and after severance go back and examine carefully to see that all fibers of the root have been cut. The sponge props are then removed and the external wound is closed without drainage.

The patient is anesthetized in the upright position, with the field of operation immediately opposite the surgeon's eye.

Special instruments are used in each step of this operation.

Royal H. Finney spoke on the following subject:

##### Outline of a Few Points in Diagnosis of Peptic Ulcer.

As a result of study in Dr. Sippy's clinic, Chicago, and of cases in the writer's own experience, the following points are important:

While there are many theories regarding the cause of ulcer, and the cause of pain, we cannot make conclusions on theoretical grounds as readily as upon clinical. Tension may play a part, but is not all. While we do not know the actual cause of pain, free hydrochloric acid must have a marked relation, or at least there is something in the stomach not present in a normal empty stomach. There is a susceptibility of nerve endings, and the continued stimulation, caused by a high amount of free HCl causes an increased irritability. From a clinical standpoint Dr. Sippy gives five earmarks for arriving at a diagnosis of uncomplicated peptic ulcer:

1. Pain is absent when the stomach is normally empty.
2. Distress appears usually from one to three hours after eating, never immediately.
3. Distress is relieved by food taking, this meaning food, not merely liquids.
4. Distress is relieved by alkalies.
5. Distress is associated with free hydrochloric acid in adequate quantity and degree of concentration.

Free acid may not be found increased at certain times of the day, but it must be found in a higher degree at the very time of distress. This last finding is present if looked for at the right time, and has a bearing on the causation of distress. The above five conditions must be present, without any one of them missing, in order to make a diagnosis of uncomplicated ulcer.

##### F. M. Heller spoke of The X-Ray in the Early Diagnosis of Pulmonary Tuberculosis.

1. Classification of the x-ray upon an apparent pathological basis.

- a. Peribronchial types; beading.
- b. Parenchymatous or lymphatic; Dunham's Fan.
- c. Hilus tuberculosis.

2. Radiographs showing early types of hilus tuberculosis in which diagnosis is based alone on symptoms.

- a. Hilus tuberculosis in children.
- b. Hilus tuberculosis not of similiar type in adults.

3. Early cases of "active" peribronchial and lymphatic tuberculosis with plates demonstrated.

F. E. WALLACE, Recorder.

#### PUEBLO COUNTY.

At a special meeting of the **Pueblo County Medical Society**, held at the Congress Hotel, on Tuesday, January 18, 1921, twenty members of this society enjoyed a well set up dinner.

The subject of the evening was Acute Throat Infections, the discussion being opened by Dr. J. J. Pattee. Everyone present had something to add to this subject, many case reports being presented which added to the interest of the paper.

President F. E. Wallace will announce his com-



mittes at the next regular meeting. The most important will be the committee on entertainment of the Colorado State Medical Society, and it is expected to be a live one.

J. H. WOODBRIDGE, Reporter.

The **Pueblo County Medical Society** met in regular session February 1, 1921, in the Society rooms.

The essay of the evening was a paper on Infant Feeding by Dr. J. H. Woodbridge. The doctor advocated the so-called Boston method of infant feeding, presenting a series of charts and formulas used in the modification of cow's milk under this method. Profuse discussions by almost every one present followed.

Dr. J. C. Epler reported a case of appendicitis and gall stones, which was of interest, due to the fact there was almost utter lack of symptoms. The diagnosis finally was arrived at and the need of surgical interference determined by watching a series of blood counts. At operation an acutely diseased retrocecal appendix was found, and a thickened infected gall bladder containing some fatty stones was drained.

Dr. Snedec reported a fatal case of diphtheria, which had been treated by a chiropractor up to twelve hours before death.

President Wallace announced the following committees:

#### Regular Committees.

Program and Scientific: H. T. Low, J. J. Pattee, C. W. Maynard.

Public Health and Legislative: W. F. Rich, H. M. Thompson, J. F. Snedec.

Entertainment: F. M. Heller, E. D. Burkhard, R. H. Finney.

Membership: E. H. Brown, F. J. Peirce, J. G. Wolf.

Publication and Library: R. W. Corwin, M. A. D. Twyford, J. C. Epler.

#### Special Committees.

State Society: W. F. Singer, Wm. Senger, P. Work, J. C. Epler, H. A. Black.

By-Laws: W. S. Johnston, J. W. Craighead, W. H. Baker.

Welfare: M. S. Middlekamp, W. E. Buck, R. C. Robe, R. R. Taylor, Wilbur Lucas.

The special committee on State Society is planning big things for the meeting next September. Dr. Geo. M. Myers was elected to membership by transfer from the St. Louis Medical Society.

Dr. R. B. Dibble was re-instated.

Drs. A. T. King and C. F. Taylor were unanimously elected to honorary membership, having reached the age of sixty-five years and also having been members of the society for ten years.

Dr. Fred M. Heller who was operated on for acute appendicitis and cholecystitis, has left the hospital and is now at his home. He contemplates two or three months rest before returning to his office.

Tuesday, February 15, 1921, the Society will hold a dinner at the Congress hotel. Dr. L. H. McKinney of Colorado Springs, will be the guest of honor, addressing the Society at that time.

Dr. O. M. Shere of Denver was a visitor in Pueblo last week, making a splendid talk to the members of the staff at St. Mary's Hospital on hospital standardization. Incidentally we learned something of Denver's trouble in hospital standardization.

J. H. WOODBRIDGE, Reporter.

#### SAN JUAN MEDICAL.

The regular meeting of the **San Juan Medical Society** was held in Durango January 12, 1921, at the office of Dr. Robbins.

Dr. Robbins read a paper entitled, "Group Medicine for Durango." Discussion, Drs. Davis, Turrell, Hutchinson.

Dr. Nossaman read a paper entitled, "Is It Justifiable to Use Caustics on Malignant Growths?" Discussion: Drs. Davis, Robbins, Hutchinson, Turrell, Burnett. Closing: Dr. Nossaman.

Drs. Theo. Hotopp and H. C. La Furgey were elected members.

Motion made by Dr. Nossaman, that this Society ask our representatives and senators to support the new medical school bill. Seconded, carried.

The following officers were elected for the ensuing year: President, A. L. Burnett, Silverton; vice president, A. W. Robbins, Durango; secretary-treasurer, John C. Darling, Durango.

Dr. Nossaman, Pagosa Springs, was elected delegate to the State convention; Dr. Hutchinson, Durango, alternate.

A program committee was appointed consisting of Drs. Robbins, Hutchinson, Darling.

Meeting adjourned until Wednesday, April 6, 1921, at 7:30 p. m.

JOHN C. DARLING, Secretary.

## Book Reviews

**The Endocrines.** By Samuel Wyllis Bandler, M.D., F.A.C.S., Professor of Gynecology in the New York Post-Graduate School and Hospital. Octavo of 486 pages. Philadelphia and London: W. B. Saunders Company, 1920. Cloth, \$7.00 net.

In the preface the author says, "whatever of theory is printed in these pages represents an attempt at a solution of vexing problems" and "these opinions are offered on the basis of therapy fortified by clinical observation". From these statements, the contents of the book can be inferred. It is the outgrowth of Dr. Bandler's extensive use of endocrine extracts in a large clinic over a number of years. Therefore, it partakes of the clinical viewpoint.

The objection might be made that some of the conclusions are unwarranted in the present state of our knowledge of endocrine functions. For instance, that hypersecretion of the posterior pituitary is the cause of high blood pressure and of exophthalmos; that the over-activity of the pituitary body causes fibromata and myomata of the uterus. But the author takes the position that "only by therapy and by the use of the extracts of these glands can we be led to definite conclusions".

The book begins with a chapter on environment and heredity. The interrelation of the various glands, their supposed functions, and their therapeutic applications are discussed through the various chapters. Of particular interest are the chapters on Endocrines in Gynecology, The Higher-up Theory of Sterility, Constitutional Dysmenorrhea, Therapeutic Suggestions, The Clinics and Case Records.

In style the book is didactic and frequent reference to the index is necessary.

Before accepting or rejecting the author's conclusions, the interested physician should study existing literature and take note of the advances made from time to time in glandular diagnosis and therapy. A working knowledge may be obtained from this book. Whatever of these theories and conclusions may be disproved when knowledge of endocrine physiology and pathology is more definite, the book is, at present, a timely addition to the already extensive literature on the ductless glands. And, because of its practical viewpoint, clinics, and case records, it is of particular value to the general practitioner.

W. H. H.

**1919 Collected Papers of the Mayo Clinic.** Rochester, Minn. Octavo of 1,331 pages, 490 illustrations. Philadelphia and London: W. B. Saunders Company. Cloth \$12.00 net.

The Collected Papers of the Mayo Clinic of 1919 makes up the largest of these volumes yet published and comprises 109 articles all contributed by members of the Clinic staff.

Throughout the volume there is an impression of careful work and study coupled with wide experience. Conclusions are drawn from the results in an enormous number of cases and are consequently of great value. Probably nowhere is such a number so thoroughly followed up. The results deserve the most careful attention.

As usual, surgery furnishes the bulk of the volume and there are few large surgical subjects that are not considered. There is such a wide range covered that it is difficult to pick out any few articles. The opinions of such master surgeons as the two Mayos and Judd on the best technique and correct procedures in the main surgical conditions are probably the most valuable part of the book. Braasch's studies on the kidney, Eusterman's report on gastrojejunal ulcer, Rose-nov's work on poliomyelitis, Hedblom's article on chest surgery, and Broder's review of epithelioma of the lip should be mentioned as outstanding features.

While numerous other papers have value and interest there are perhaps some that might easily have been omitted without detriment to the book. A somewhat smaller volume with a little more rigid selection of contents would be fully as attractive.

To anyone who has not thoroughly kept up with the Mayo contributions as they have appeared in the journals, we highly recommend this book for perusal as the latest collective expression of opinion from one of the greatest surgical clinics of the world.

G. B. P., Jr.



# Colorado Medicine

OWNED AND PUBLISHED BY COLORADO STATE MEDICAL SOCIETY

## PUBLICATION COMMITTEE.

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## Editorial Comment

### WHAT IT COSTS NOT TO HAVE A HOSPITAL.

The financial value of a teaching hospital for the state of Colorado is by no means the most important aspect of the state hospital question. But apparently the only serious objection to the bill now before the legislature to make such an institution possible in Colorado, is the cost. Those who are being influenced by this ought to consider what it costs the state annually in hard cash, to get along without such a hospital.

One item of this cost is the expense of Colorado medical students getting a medical education outside of the state. The "educational number" of the Journal of the A. M. A. for 1920, August 7th, gives full data as to the number of medical students from each state, the medical schools they are attending, and the cost of tuition and laboratory fees in each of these schools. Of the twenty-one schools outside the state, which students from Colorado are now attending, not one has a better record than the Colorado school for state board examinations, but nineteen have distinctly better facilities for clinical instruction. Most of them own, or administer in all respects large teaching hospitals.

We find that during the last academic year there were one hundred twenty-eight Colorado students in medical schools. Of these fifty-nine attended the University of Colorado, Department of Medicine, and sixty-nine went to medical schools outside the state. These sixty-nine students paid for tuition and laboratory fees alone \$15,044. The schools attended by eight were nearer than the Mississippi River, while sixty-one went that far or farther. It is certain that these students paid over \$10,000 for transportation. Assuming that each of these students spent at least \$600 for board, rooms, books, instruments and other necessary expenses, this makes an item of \$41,400. Here is a total of \$66,000, spent annually outside of the state by Colorado medical students.

If the Colorado medical school is closed, and the fifty-nine Colorado students, and twelve from other states now attending it, are sent elsewhere to study, the amount of money of which the state is deprived each year will be more than doubled. And it is not likely that the university will attempt to maintain an in-

ferior medical school, if the state denies it the assistance needed to secure the Rockefeller gift. Nothing has been said about other items of saving that a good medical school would effect; nor about the large number of students from other states that would naturally seek their medical education in Colorado if the new hospital were built; nor the two years of college education required of each before entrance upon the medical course.

The above figures deserve serious consideration by our legislators, particularly by those who belong to a political party that advocates protective tariffs to secure the "home market." Those who have not looked into the matter have little idea of the outgo of money from Colorado, for medical education, that could be stopped by the building of the teaching hospital plant, needed to establish a first class medical school in Colorado.

E. J.

### TO THE PUBLIC ABOUT PUBLIC HEALTH WORK.

That doctors are the authors of most public health measures of the present day—at any rate that sanitation and preventive health regulations depend upon the knowledge of trained physicians, and are directed along lines espoused by medical graduates—can not be questioned by anyone who will inform himself about their origin and preparation. It is equally as plain to the well informed person that these measures have led to successful results on a large scale in the stamping out of a number of plagues, preventing the ingress of others and making the world generally a healthier place to live in.

This has been done by doctors in spite of the sad fact of quite regular opposition to their every move on the part of a certain element of society. A little reflection should convince any unprejudiced mind that the doctor's motive in such work is altruistic, for it is absolutely contrary to his material interest to prevent human ills, on which his income depends. Since, then, he is not actuated by self-interest, the only conceivable reasons for opposition to his work would be either that it is not desirable to prevent disease or that the doctor is a self-deluded individual who, in a conscientious missionary spirit, is trying to foist erroneous views upon the public and subject it to hardships which he mistakenly considers of value. The results already accomplished are the answer to the latter view, and as to the first one, that public health should not

be protected, it is probable that the majority desire such protection, and in America theoretically the majority should rule. Yet it is nevertheless true that opposition to the doctors in their efforts at betterment of health conditions is becoming more and more pronounced and rabid. In the past the physicians of higher qualities have felt it their duty to disregard this opposition and to go ahead, bolstered up by the feeling that they were in the right and that they were dealing with conditions of ignorance on questions of physiology and disease which should only spur them to further stubborn effort. But the burden is becoming almost too onerous to be carried and their patience is sorely tried. Thinkers among the profession are beginning to ask themselves whether they are justified in martyring themselves by further butting their heads against a wall of ignorance and misinformation, built by cults, faddists and fanatics. It is heard suggested more and more, and that by serious minded ones in the profession, that the time may have come to withdraw the attack and cease trying to give away advice which the people do not seem to want.

Suppose that doctors, by unanimous agreement, should suddenly stop all public health work. Suppose also, out of fairness to the doctors' position, that public health measures of the past which they have espoused should be dropped in deference to the objectors' viewpoint. If such a reversion is good for county or state, it should be equally good for the nation. The national Public Health Service should cease operations. Ships laden with immigrants should be allowed to dock and disgorge their cargoes of derelicts without medical examination, without quarantine; and our shores, which have been protected from bubonic plague, typhus and other old world maladies, laid bare to the ravages of those diseases. Districts formerly malarial or yellow-fever-ridden should be allowed to revert to their old status, for whatever change has been made was brought about by the medical fraternity and is the result of the same "fallacious" views that are back of their other measures. Do away with state boards of health or turn them over to chiropractors and pseudo-scientific health cults who have only a smattering of that education which a physician has spent years in acquiring. Abolish boards of medical examiners and give free rein to any quack to handle any disease he pleases; let contagious diseases fall into his hands without restriction—for that restriction is one of the doctors' measures for the public's protection. Let any mechanic who so wishes do surgery—for the doctors are the ones who are now preventing it. Do away with antitoxins, smallpox vaccination. Abolish quarantine, for, to be effective, it presupposes early diagnosis by physicians. In short, if you will have no more of the doctors' "meddling", be consistent and tear down the whole public health fabric which they have wrought. This is not a foolish argument. Quarantine and sanitation rest upon medical science—they are the outcome of the studies of physicians.

Would you desire such a change? It is be-

lieved that straight thinking people would not. Then why do you make it so difficult for those who are trying to help you?

The medical profession is tired of having to defend itself and its policies. Many in its ranks are ready to lie back on their oars and let the boat drift. After a length of time the people may come to their senses. Then, it is not unlikely that the doctor would in the meantime have come to his; and would not again try to offer five dollar gold pieces for a dime, but demand full compensation for his wares. When county hospital staffs had to be paid, and paid full fees; when state boards of health had to be made up of full time, well remunerated members; when public clinics, tuberculosis, venereal and others, could no longer depend upon the gratuitous service of indulgent physicians—then the people would have an opportunity to appreciate the value of what they are now getting free, and the doctor would be financially better off.

High ideals of duty to humanity have characterized the medical profession in the past, and do so today; but if the doctor can not have some say as to the disposition and administration of what he gratuitously furnishes the public, he has a right to hold it for sale.

This is a simple statement of the way many doctors feel; and unless there is a change in the public attitude, and if the great body of the public which it is believed really favors medical science does not come forth from its retirement and offer active support, the profession may simply retire from a field in which it is "pesthered" to the point of exasperation.

You may say that you do not want such an event to take place; that you are not opposed to all public health measures, but to only certain ones. If you are willing to accept the big things that have been done, remember they were done only through methods born of medical science and your only hope for further betterment is from the same source. When movements for the public health are under way, consider their source and if they are initiated, sponsored or supported by the medical profession, rest assured that they are offered in the same spirit of altruism and with the same thorough consideration of the greatest good for the greatest number that were the basis of previous accomplishments—and do something to indicate your approval.

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#### NOTICE TO SECRETARIES OF CONSTITUENT SOCIETIES.

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Your attention is called to the matter of your annual report to the state secretary. The final time limit for its receipt at the secretary's office is April 3. If it is not at hand on or before that date your members will be stricken from the roll of the state society and their names reported to the A. M. A. as suspended.

The secretary has no alternative under the by-laws, which read: "On or before the third day of April of each fiscal year the secretary of each constituent society must forward to the secretary of this society an annual report, giv-



ing the full roster of membership since the last annual report, showing in detail those who have paid their annual assessment, who are delinquent, changes of address, and all changes that have taken place in the membership by removal, resignation, suspension or dropping for cause, and by death, together with a list of honorary members, officers, delegates, alternates, and accompanying the report with a check for the amount of the per capita assessment collected from members due this society and not previously paid."

Required blanks were furnished some time since, with a personal letter of transmittal to each constituent society secretary, and this notice is given as an additional reminder of the importance of timely performance of this duty.

Remittance of dues for all members reported and not so far paid must accompany the report.

#### STATE BOARD OF HEALTH NOTES.

The graph strikingly shows the large increase in deaths from diphtheria. In 1920 there were reported to the State Board of Health, one thousand six cases and one hundred forty-two deaths. When we take into account the number of people practicing medicine who are unable to recognize it, the number of children who have had diphtheria in this state must be enormous. The fault lies largely with the family, not much less with the family doctor. He knows or should know that the Schick test with subsequent immunization will protect the child for years, probably for life.

#### Deaths From Diphtheria in Colorado.



In many eastern cities, notably Buffalo, the family M. D. is busy, and to quote the Buffalo Sanitary Bulletin of December, 1920: "It is a pleasure to say that the physicians of Buffalo

also are giving their families the benefit of the Schick test and toxin antitoxin. At the rate the Schick test is done, we will eventually have everyone immune to diphtheria as they are now immune to smallpox." The State Board of Health is making strenuous efforts for the establishment of a state laboratory where the Schick test and immunization may be done; where doctors who are interested may observe the workings of making the test and giving prophylactic.

COLORADO STATE BOARD OF HEALTH,  
J. W. M.

### Original Articles

#### OBSERVATIONS ON THE PATHOLOGY AND TREATMENT OF CHOREA.\*

G. A. MOLEEN, M.D., DENVER.

St. Vitus' dance, ordinary chorea, chorea minor or Sydenham's chorea are terms applied to one of a group of nervous diseases in the endeavor to distinguish it from the other states sometimes referred to as the "choreas." All members of this group have in common a peculiar type of involuntary muscular movement, which may be said to be unique, rather difficult to describe and yet so readily recognizable that having once been observed, it is usually identified at a glance.

The group, however, includes members which show considerable contrast when viewed from their etiological and pathological aspects more especially. It is the purpose, therefore, to confine the attention to the member indicated at the outset, after referring briefly to the movements themselves with a view to pointing out certain peculiarities which may have a suggestive bearing upon the histological pathology.

Choreic movements are quite similarly described by various authorities, and almost invariably as "widespread, involuntary, purposeless and with constant variation". The characteristic to which it is desired to direct attention is that while many of the movements are purposeless though rhythmical, they are very often difficult to distinguish from movements directed by or proceeding from a voluntary purpose.

It is the absence of a reasonable purpose which often impresses the observer; the resemblance must nevertheless be borne in mind. This is more often observed in the face, as in forced transitory smiling movement without the slightest occasion or impulse on the part of the patient to display emotion. Again one observes the rhythmical association of the labial muscles leading to the puckering of the mouth as if to blow or whistle—not with the purpose of blowing or whistling, but with a striking appearance of purpose.

The same may be observed in the eyes and also in the extremities where such involuntary acts as the grasping or releasing of objects in which groups of muscles are concerned, however foreign

\*Read at the annual meeting of the Colorado State Medical Society, September 7, 8, 9, 1920.

to the purpose, yet have the semblance of the voluntary purposeful act.

This characteristic has been noted so frequently as to suggest the term pseudo-purposeful as applying to many such movements. Moreover, such acts are suspiciously associated with the cortical representation of movement from which proceed impulses leading to rhythmical correlated muscular contractions, functionally associated with purpose in the normal state, rather than isolated muscular contractions. It would seem likely that this particular type of movement proceeds from the cortex as a result of the pathological stimulus.

Some authors (Spear) hold that the movements are not characteristic of cortical activity because they are not purposeful and similarly that the spinal cord is the probable seat of disturbance, because the cells are found to be grouped or arranged with respect to their functional association.

It must be apparent, however, that any involuntary act is essentially without purpose, and it is submitted that it is distinctly characteristic and within the province of cortical function as generally accepted to lend to the involuntary act the appearance of purpose, even though executed with no nearer an approach to the culmination of that

## CHOREA

Case. No.	Sex.	Age.	Family History.	—Rheumatic Manifestations:—				Total.	Reflexes.
				Acute Rheumatism.	Endo-carditis.	Tonsillitis.	Scarlet Fever.		
1	107 (R)	f.	10	aunt chr.			+	1	+
2	144	m.	9	neg.		+		1	?
3	177	m.	9	neg.		++	+	2	+
4	206	f.	12	?					?
5	332	f.	14	neg.	+			1	+
6	339	f.	6	neg.	pains	+		2	+
7	451 (R)	f.	4	neg.	purpura			1	+
8	463 (R)	f.	13	neg.	+			2	+
9	464 (R)	f.	9	?	ot. med.		+	1	+
10	471	f.	21		+			2	sl. +
11	204	f.	11	neg.		++	+	2	dim.
12	236	f.	3	no	aden.			1	?
13	252	f.	4	no		+		1	sl. +
14	603 (R)	f.	14	neg.	+			1	+
15	653	f.	12	neur. neg.	defective	?			+
16	664	f.	20	neg.		+		1	sl. +
17	859 (R)	m.	12	neg.		+	+	2	+
18	905	m.	20	neur.	+			1	+
19	943 (R)	f.	25	neg.	+	+		2	mod. +
20	1105 (R)	f.	13	neg.		+		1	+
21	1114 (R)	m.	12	neg.			+	1	sl. +
22	1189	f.	21	neg.					+
23	1216	m.	9	neg.					+
24	1232	m.	9	neg.		+		1	?
25	1249	f.	11	endoc.		+		1	+
26	1346	f.	9	neg.	+	+		2	+
27	1357	m.	5	rheum.	+			1	sl. +
28	1362	m.	9	neg.	+			2	+
29	1444 (R)	m.	8	endoc.		+	+	2	sl. +
30	1459	f.	11	neg.		*		1	+
31	1508	f.	20	endoc.	+		+	2	+
32	1546	m.	9	neur.		+		1	sl. — =
33	1553	f.	10	neur.		*	+	2	+
34	1840	f.	5	neg.		+		1	sl. +
35	1852	f.	13	neg.		+	+	2	sl. +
36	1939	f.	10	neg.		++	+	2	sl. —
37	1944	f.	18	neg.	+	+	+	3	sl. —
38	2042	m.	10	rheum.		*		1	sl. —
39	2053	f.	10	neg.		+		1	{ R. abs.
40	2221	f.	21	neg.	+	*	+	3	{ L. dim.
41	2222 (R)	f.	9	neg.		+		2	+
42	2254	f.	4	neg.					sl. +
43	2264 (R)	f.	7	neg.	+		+	2	{ R. pres.
44	2290	f.	7½	neg.	+		+	2	{ L. incr.
45	2488 (R)	f.	17	neg.		+		1	sl. —
46	2575	f.	15	neg.		+		1	++
47	2626	f.	14	neg.		*		1	+
48	2659	f.	20	neg.		+		1	sl. +
49	2719	f.	14	neg.	+	*	+	3	—
50	2756	m.	10	neg.					sl. +
51	2785	m.	11	neg.		*		1	+
52	2868	f.	9	neg.	+	+		3	{ R. —
53	2877	f.	14	neg.		*		1	{ L. norm.
54	2904	m.	30	neg.	+	*		2	—
55	3002	m.	15	neg.	+	+		2	++
56	3021	f.	10	neg.		+		2	+
57	3022	f.	14	neg.	+	+		1	mod. +
58	3065	f.	8	neg.	+	+	+	3	+
59	3090 (R)	f.	9	neg.		+		1	sl. +
60	3107	f.	13	neg.	+	+		1	mod. +
61	3120	f.	8	neg.		*		3	mod. +
62	3152	m.	12	neur.	+	+		1	sl. +
						+		2	+

(R) Recurrent.

\* Repeated.

+ Increased or attack.

— Diminished.

= Equal.



purpose than are the movements of the unconscious.

Others (Edwards) refer to chorea as a leptomeningitis caused by the diplococcus rheumaticus, to which reference will be made later.

That the cerebral cortex is the early seat of involvement in practically all cases is supported by considerable evidence, more or less circumstantial, such as the frequent monoplegic or unilateral distribution, the increase in the reflexes in a great majority of cases, the absence of twitchings during sleep, mental symptoms and finally the absence of peripheral neuron evidences (atrophy, change in electrical reactions, sensory symptoms).

It is important also to distinguish such acts from those automatic, emotional complexes of motion—such as forced actual laughter or weeping—which are in fact more advanced manifestations indicating extension and especially referable to the optic thalamus and lenticular nucleus.

Likewise there are occasionally to be recognized in the course of the disease contractions which may best be reconciled with the spinal cord function as at present understood, but these movements, if isolated, would not admit the designation of "choreiform."

The evidence of early functional involvement of the cerebral cortex as a rule is of the greatest concern, as this is an over action which proceeds from a pathological exciting stimulus, the nature of which forms an essential part of the object of this presentation.

The frequency with which chorea has been found in individuals who have presented manifestations of rheumatism has been recognized for many years. Osler's early observation of 15.8 percent and the 14 percent of 319 cases recently mentioned by Koplik (*Contr. of Med. and Biolog. Research*, 1919, Vol. 1, p. 623) in which there was a positive history of rheumatism—rheumatic pains or articular attacks in the patients themselves, disregarding family histories of rheumatic attacks—serve to indicate the relationship which cannot be ignored. These percentages appear quite low to admit of a conclusive statement, but as our knowledge of the infective nature of rheumatism and the evidences of the infection, aside from the frankly articular, becomes more illuminated, the cases which may be regarded as premised upon this cause will reach but little short of a totality.

The relationship of cardiac disease has been frequently pointed out. In 1892 Osler mentioned that out of 110 cases of chorea, 54 had organic disease of the heart, and adds the significant statement quoted by Koplik: "There is no other disease in which endocarditis is known to be so frequently associated, and no other disease in which postmortem records show such a large proportion of endocarditis".

Goodheart and Still are credited with the statement that "in many cases the chorea is the first symptom of rheumatism, and the further evidence of chorea appears later." Thomson said, "Chorea is not seldom the first of a series of rheumatic phenomena", and again, "In a considerable proportion of cases chorea is beyond all doubt a manifestation of rheumatism"; while in the last edition of his *Clinical Medicine* we find the definition,

"In the majority of cases chorea is a disease of childhood due to a leptomeningitis caused by the diplococcus rheumaticus."

The many times in which scarlatinal infections are a part of the record of those cases in which acute rheumatism, endocarditis, acute follicular tonsillitis or chorea appears, exceed the limits of the circumstantial and suggest a significant correlation of bacterial genera.

In order to draw an inference as to the relationship of what may be termed "rheumatoid" or streptococcus infections, the cases of acute chorea were selected from 3,000 nervous records taken in private consultation practice. In this series there were 62 cases of chorea, or about 2 percent; 17 occurred in male and 45 in female subjects. Referring to the age of incidence, 23 were under 10 years of age, 49 were under 15 and 9 were over 20 years. In this series 13 cases are noted as recurrent attacks. In 3 cases no definite history could be obtained of rheumatic, tonsillar or scarlatinal infections; in 2 of these there was no knowledge of such infection—one being but 4 years of age and the other being mentally defective. Acute rheumatism was recorded in 23 (or 37 percent) of which 6 (or 26 percent) had had scarlatina. In 42 (or 67 percent) there was a definite history of one or more attacks of tonsillitis.

Eliminating the three cases in which no history was obtainable, there were 59 cases, out of which there occurred in 53 either one or more of the three associated infections (scarlatina, tonsillitis, rheumatic fever), and one each of rheumatic purpura and streptococcus otitis media was noted in the series.

Mention having been made that the tendon reflexes were lost in a considerable proportion of cases, the records of the cases in this series show an approximately normal response in 27 cases; moderate increase in 20; variation on the two sides in 4; diminished in 8; and doubtful in 4.

If we now include such manifestations as proceed from diplococcus or diplo-streptococcus infections confined to foci in various parts of the body, chiefly in the tonsil, about the alveolar process and occasionally in the chronically obstructed appendix, there will be added a considerable number of cases in which the toxin from the "rheumatoid group" of organisms may be incriminated.

We may at least agree with the modest statement of Koplik that "it is true that rheumatic manifestations are common to many acute infections, but the accompaniment of heart involvement in chorea with rheumatic manifestations must leave us to conclude that chorea may eventually be proved to be caused by some infection closely allied to that of acute articular rheumatism", and, I think we may with propriety add, acute "rheumatic" or follicular tonsillitis.

Finally the therapeutic test—if we may employ this as evidence—indicates that the salicylates are as preeminently effective in chorea as in other manifestations of rheumatic or streptococcus infections.

The evidence thus presented in recent clinicopathological studies of chorea minor is sufficiently strong to impute to a bacterial toxin an irritative influence upon the cells of the cortex of the motor



area in the vast majority of cases; and this as a result of an excito-determining influence establishing here a *locus minoris resistentiae*. This influence includes—besides congenital neurotic constitution, unhygienic environment, mental anguish (abuse) or overwork and the like—that condition which is so frequently found in association with streptococcic infections, a diminution in hemoglobin, or anemia.

**Treatment:** The chief indication in the treatment of acute cases is rest, mental and physical, not only to remove the effects of exciting influences from the already over-excited cortex, but to avoid the most serious accompaniment of this and the allied infections—endocarditis.

The room should be quiet and especially should it be well lighted, for obvious reasons.

The diet should be selected with a view to nourishment and should include red meats once daily, while the amount of fats or cream is to be limited.

The value of salicylates cannot be questioned, but they may be variously administered. Ordinarily salicylic acid freshly neutralized by means of bicarbonate of potash in a medium of solution of citrate of potash is effective; to this may be added from 4 to 10 grains of bromide of soda as required; or from 5 to 15 grains of chloral hydrate may be given sufficiently often to induce sleep or frequent naps.

The administration of salicylate of soda intravenously has been followed by very prompt arrest of the movements in several cases in which this procedure was employed. Thus in a case of violent chorea in a child of 8, who was with difficulty kept in bed, complete calm was induced after a third injection of 10 grains of the neutral salt. In an adult with a most severe chorea insanienis, exhibiting much maniacal confusion, complete quiet was restored after a fourth injection of 15 grains.

In two cases, however, in which active recent evidences of endocarditis had appeared the intravenous method failed in its apparently spectacular effects, and the cases ran a course of about six weeks. This failure is difficult to explain, but in any event it is certain that the influence was favorable upon the general condition, as evidenced by the impression on the temperature, pulse and cardiac symptoms.

The use of arsenic in its various forms in chorea finds its justification and favorable influences dependent upon the lowered blood values common to all infections of the microbic group under suspicion. It may be said without reservation that no immunity is conferred against this group greater than that of a full blood complement.

In conclusion it would seem that we are justified in the following deductions:

First—That chorea is the result of the general toxic blood state or of local action of a micro-organism in the cerebral cortex; and that this organism is closely allied to or an evolutionary development of the diplococcus or diplo-streptococcus of rheumatic fever.

Second—That the greatest liability or danger in the disease is in the involvement of the endocardium.

Third—That focal infections are to be seriously

considered in all cases, but that operative measures, especially upon tonsils, should be deferred until the acute period of the attack has passed, as manipulation is likely to be followed by violent aggravation of all manifestations, including the implication of the serous membranes.

Fourth—That the most effective treatment aside from the symptomatic is that which may be directed against the microbic infection, namely, salicylates, either by mouth or intravenously, increasing the dose until the physiological effects are reached.

Fifth—That arsenic and hematinics are essential for the re-establishment of the constantly associated lowered blood values rather than as direct antagonists of the cause of the disease.

325 Mack Building.

## DISCUSSION.

**C. E. Cooper, Denver:** Dr. Moleen mentioned the focal infection. The laryngologist is often called upon to determine at what time, following a scarlet fever or endocarditis, acute rheumatism, chorea, it is a safe procedure to take out the tonsils. This is a matter of importance, because if done too early you have a recurrence of an influence which you desire so much to prevent, and oftentimes it is not convenient to delay too long a time. If we had some means at our disposal which would warrant us in considering it as an indication of safety, it would be very much to our advantage, and such a means exists in the blood count; if you have a leucocyte count of 8000 or under, it is safe enough for you to remove the tonsils following acute endocarditis; if you have a leucocyte count of over 8000, it would be better to wait until such time as the blood count has been reduced.

**L. I. Miller, Denver:** With reference to chorea, I have had two cases in which ten grains of sodium salicylate were given intravenously at intervals of 12 hours; after 4 doses we found the white blood count to be reduced to 6000.

The tonsils were then removed in these two cases without any recurrence of choreic symptoms. Of course, several doses of sodium salicylate (gr. x) intravenously were given following operation.

**Dr. Moleen, (closing):** There is very little that I have to add. I might say concerning operation what I meant to convey, that I am opposed and have always been opposed to operation in the acute stage of chorea. I have, on several occasions, observed very serious results from operative procedures alone. In one instance a combination of a violent chorea with mental symptoms and endocarditis followed. There is no reason why it cannot be delayed, and even to the end suggested, of treatment with the salicylates just before operation or even for some time before. I purposely avoided other methods of treatment which have been advocated, such as the intraspinal injection of magnesium sulphate which has been advocated by some Italian and French clinicians; and the use of the auto serum likewise, but if effective would only emphasize what I have said regarding the toxin and its probable origin.

## ROENTGENOGRAPHIC STUDIES IN ASTHMATIC BRONCHITIS.\*

J. B. CROUCH, M.D., AND F. A. FORNEY, M.D.,  
WOODMEN.

For several years we have noticed a marked similarity in the x-ray pictures of patients suffering from asthmatic bronchitis. The following changes were noted: The bronchial shadows were increased, the hilus thickened on one or both sides, the mediastinum usually broadened and there was also very frequently a knob at the aortic arch. The increased bronchial shadows and the thickened hili are easily accounted for as they occur in any bron-

\*Read at the annual meeting of the Colorado State Medical Society, September 7, 8, 9, 1920.



chial infection, even though there be no associated asthmatic attacks. It is not so easy to account for the broadened mediastinum and the knob at the aortic arch. Smith and Kilgore<sup>1</sup> give four causes for dilatation of the aorta: first, syphilis; second, arterio-sclerosis; third, severe cardiac disease, and fourth, hypertension without arterio-sclerosis, such as in chronic nephritis. In addition to these, Martin<sup>2</sup> mentions the widened mediastinal shadow as caused by a high diaphragm. This, of course, is not pathologic. It is true that we are unable to prove the shadows which occurred in these pictures were due entirely to the patients' asthmatic condition, but they were so uniform and so constant that we felt such was the case.

We wish to present the following cases:

**Case 4698.** O. W. Age 48 years. Butcher. Family history: father died from asthma at the age of 42 years, after being sick for one year; his sister died with throat trouble at the age of 51; otherwise the family history was negative. His present trouble was first noticed fifteen years previous to his admission to the sanatorium, when he became dyspneic, but remained in fair health until one year before his admission, when he commenced to lose weight, coughed, was short of breath, had chilly sensations and a slight fever. When admitted to the sanatorium he complained of asthmatic attacks at night.

Physical examination showed a fairly well nourished individual with a full, rounded emphysematous chest. There was no dullness over either lung, but bronchial asthmatic râles were heard over both sides. Blood pressure: systolic 114, diastolic 96.



Case 4698

X-ray showed an increase of bronchial and linear markings throughout both lungs. There was also increase of both hili. Heart and

mediastinum enlarged and there was a well marked knob at aortic arch.

Sputum and urine were both negative. Wassermann negative.

Diagnosis: Bronchitis, asthma, emphysema. No clinical tuberculosis.

**Case 2891.** F. B. Q., age 33 years. Bookkeeper. Family history negative. Had not been in good health for five years previous to entering the Sanatorium, although he continued to work until three months before being admitted. He lost weight, lost his appetite, was tired, coughed and expectorated, and had nocturnal spells of asthma. He was expectorating about half an ounce of mucoid sputum which was always negative for tubercle bacilli.

Physical examination showed very slight dullness over the upper half of both lungs posteriorly and the apex of right lung anteriorly. There were scant fine râles throughout both lungs. Blood pressure: systolic 110, diastolic 86.

X-ray showed an increase of the bronchial shadows in both lungs, both hili were increased, the mediastinum slightly broadened and there was a knob at the aortic arch.

Sputum and urine were both negative. A Wassermann was not made in this case, although there was no history of syphilis.

Diagnosis: Bronchial-asthma. No clinical tuberculosis.

**Case 4795.** J. O. S., age 60 years. Patient was manager of a restaurant and had formerly been a laborer. Family history was negative for tuberculosis. He had had asthma for ten or twelve years before being admitted to the Sanatorium, although he did not begin to fail much until two years previous to his arrival. He lost weight, was tired, coughed, expectorated, was short of breath, had a slight fever, some pleuritic pains and slight hoarseness. Had asthmatic attacks about two or three a. m. regularly. Expectorated about three ounces of mucoid sputum each day.

Physical examination showed a poorly nourished individual with a full, rounded, barrel-shaped chest, with slight dullness over the hili and with bronchial rhonchi and sibilant râles heard over both lungs. Blood pressure: Systolic 108, diastolic 76.

X-ray showed entire right side somewhat clouded, an increase of the bronchial shadows on both sides, increase of the shadows of the hili, broadened mediastinum and a well marked knob at the aortic arch, almost suggestive of an aneurysm.

Sputum, urine and Wassermann tests were negative, complement fixation test for tuberculosis negative.

Diagnosis: Asthma, bronchitis and emphysema. No clinical tuberculosis demonstrated.

In this case the aortic shadow might be due to his age, but as the patient had a very low blood pressure, it was undoubtedly not due to hypertension.

**Case 4691.** A. W. F., age 42 years. Barber. Family history negative for tuberculosis. Health was good until four months before entering Sanatorium, when he had influenza, which marked the onset of the illness for which he



was admitted. Following this he lost weight, was tired, expectorated, was short of breath and had pleuritic pains and some hoarseness. He was raising about an ounce of muco-purulent sputum daily, which was always negative for tubercle bacilli. He also had severe asthmatic attacks.

Physical examination showed a poorly nourished individual. There was slight dullness in the upper half of both lungs, with distant bronchial râles, which were dislodged by cough; and a few moist râles over the right base anteriorly on cough. Blood pressure: Systolic 112, diastolic 84.

Wassermann negative. Urine negative.

X-ray plate showed an increase of each hilus, increased bronchial markings throughout both lungs. Slight widening of mediastinum and slight knob at aortic arch.

Diagnosis: Bronchitis and asthma. No clinical tuberculosis.

Case 4667. W. J. B., 45 years of age. Stationary engineer. Family history negative for tuberculosis. Had been in good health until fourteen months previous to entering Sanatorium, at which time he had influenza. Following this patient continued to lose weight, coughed, expectorated, was tired, short of breath and had a low grade fever.

Physical examination showed a poorly nourished individual with slight dullness over the upper half of both lungs. There were sibilant râles and bronchial rhonchi heard on both sides. Blood pressure: Systolic 100, diastolic 76.

Urine and sputum were negative. Wassermann was negative.

X-ray showed the shadows in each hilus markedly increased. Bronchial shadows were increased throughout both lungs. The heart was slightly enlarged, mediastinum broadened and there was a knob at the aortic arch.

Diagnosis: Bronchitis and asthma. No clinical tuberculosis.

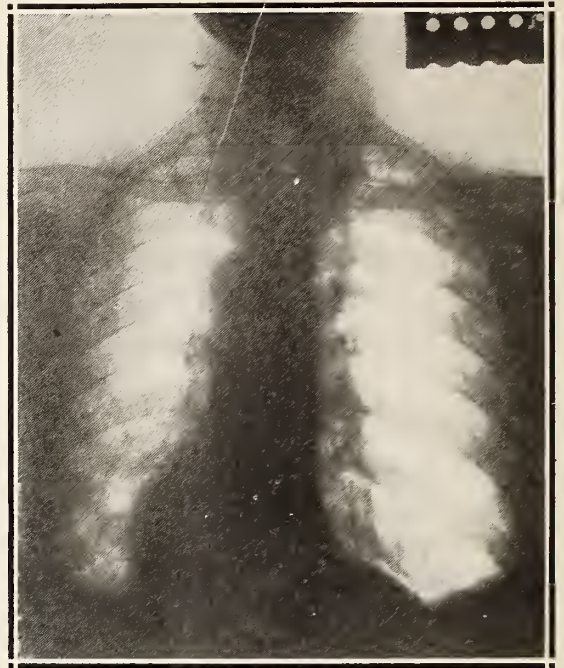
Case 4784. S. G. K., age 61 years. Merchant and photographer. Family history positive for tuberculosis; brother died from this disease. Present trouble began with an attack of edema of glottis, four months before patient was admitted to the Sanatorium. He was very ill at this time. After this attack patient continued to lose weight, was tired, coughed, expectorated, was short of breath and had some fever. Tubercle bacilli were said to have been found in his sputum one month previous to his coming to the Sanatorium, although we were unable to demonstrate tubercle bacilli on repeated examinations at the Sanatorium.

Physical examination showed a poorly nourished individual, who had evidently lost much weight. He was very dyspneic and asthmatic râles were heard in both lungs.

X-ray plate showed slight clouding of apices and in lower half of left lung. Bronchial shadows were increased in both lungs. There was marked widening of the mediastinum with a knob at the aortic arch.

The urine at times showed a light cloud of

albumen, and a few hyalin casts. At other times the urine was negative.

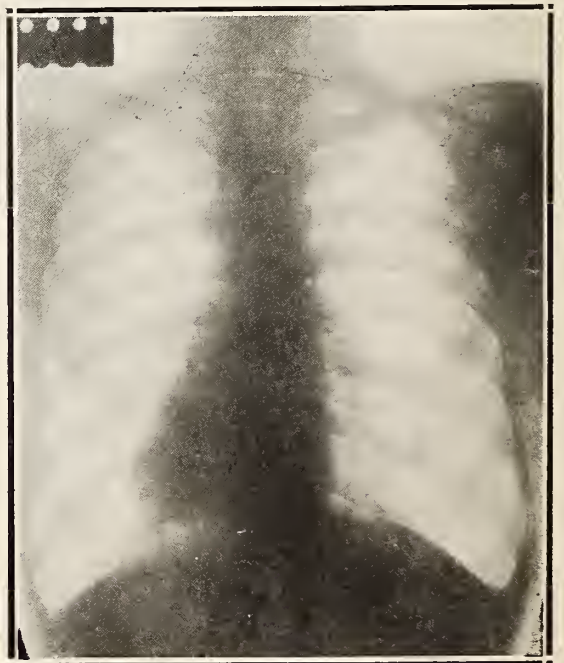


Case 4784

Diagnosis: Bronchitis, asthma and interstitial nephritis.

Here again the man's age and his nephritis could account for the changes in his aorta and mediastinum.

Case 3881. H. P. M., 53 years. Watchman. Family history negative for tuberculosis. Health had not been good for past year. Had a gradual onset of his trouble with loss of weight, cough, expectoration and asthmatic symptoms. Expectorated about two ounces of mucoid sputum daily, in which tubercle bacilli



Case 3881



were said to have been found in April, 1918, three months before admission to the Sanatorium. We were unable to demonstrate tubercle bacilli in sputum by ordinary methods, but a guinea pig inoculated with this sputum died of generalized tuberculosis.

Physical examination showed some dullness in the upper portion of both lungs; slightly more marked in the left. The breath sounds were diminished in the left, especially in the base. There were coarse bronchial rhonchi and asthmatic râles heard over both lungs. Blood pressure: Systolic 138, diastolic 92.

X-ray examination showed enlarged bronchi and bronchioles, extending throughout both lungs. Calcified glands at hilus of left lung. Marked aortic shadow. Calcified cartilages. Wassermann was negative.

Diagnosis: Bronchial asthma and tuberculosis.

**Case 3244.** W. F. N., age 52 years. Janitor. Personal and family history negative. Present illness, onset four months before entering the Sanatorium with severe cold. Complained of loss of weight, cough, expectoration and asthmatic symptoms. On admission expectorated about four ounces muco-purulent sputum daily, which was blood-streaked once, and was always negative for tubercle bacilli.

Physical examination showed a well-nourished individual with a full, emphysematous chest; few distant dry bronchial râles in both lungs; cough and expectoration worse than physical findings would indicate. Blood pressure: Systolic 138, diastolic 92.

X-ray findings showed apices of both lungs clear. Marked thickened fan-shaped bronchus to base on right and on left. Marked heart shadow with wide mediastinum and knob at aortic arch.

Diagnosis: Bronchitis, emphysema and bronchial-asthma.

**Case 4266.** W. J. E., 49 years. Tanner. Family history showed one aunt had died of asthma. Health of patient was good until five months before being admitted to Sanatorium, when he had influenza and pneumonia. Following this there was loss of weight, he was tired, coughed, expectorated, and had asthmatic symptoms. Was expectorating about one dram of sputum daily, always negative for tubercle bacilli.

Physical examination showed a well-nourished individual, with a full, rounded emphysematous chest. Slight dullness in the upper half of both lungs, and an enlarged heart. Asthmatic squeaks and bronchial râles were heard throughout both lungs. We were unable to demonstrate any heart murmur. Blood pressure: Systolic 158, diastolic 106.

X-ray showed enlarged heart shadow, also an enlarged shadow of the aortic arch. Hilus shadow on both sides enlarged, with increased bronchial markings.

Diagnosis: Bronchitis, asthma, emphysema, with cardiac hypertrophy.

Wassermann was negative in this case.

**Case 4221.** W. F. A., age 57 years. Laborer. Family history negative for tuberculosis. Pres-

ent trouble began about six and one-half months previous to being admitted to Sanatorium, with pains in chest, following a severe cold. Later patient lost weight, was tired, coughed, expectorated and had symptoms of asthma. When admitted to the Sanatorium he was expectorating about one ounce of muco-pus, in which we were unable to demonstrate tubercle bacilli.

Physical examination showed a broad, full-chested individual, with good nutrition. Some dullness was found in the upper half of both lungs, with crepitant râles in the base. Bronchial asthmatic râles on both sides. Blood pressure: Systolic 132, diastolic 96.

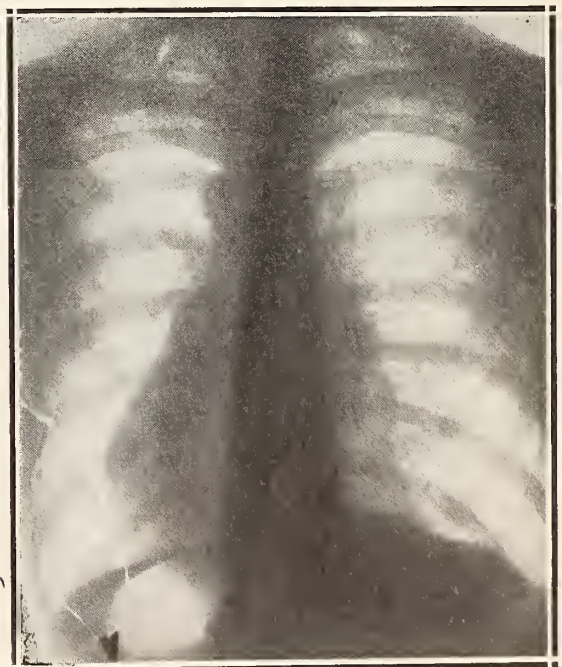
Wassermann tests on this patient were negative.

Diagnosis: Bronchitis and asthma. No clinical tuberculosis.

**Case 4206.** W. W. F., age 58 years. Formerly employed in a watch factory. Recently clerk of one of the Woodmen Camps. Family history was negative for tuberculosis. Health had always been good until about seven months before being admitted to the Sanatorium, when patient had a severe cold following exposure, after which he lost weight, was tired, coughed, expectorated, and had marked asthmatic attacks, especially at night. When admitted to the Sanatorium was expectorating two ounces of muco-pus, always negative for tubercle bacilli.

Physical examination showed an emaciated individual with a broad, flat chest, lagging slightly on the left side. There was a slight dullness in the upper part of the right lung, with a marked enlargement of the heart to the left; also a marked systolic murmur at apex, with accentuation of the second pulmonic and aortic sounds. Pulse was intermittent occasionally. Blood pressure: Systolic 134, diastolic 98.

X-ray examination showed increase of hilus on the right. Both lungs appear normal except



Case 4206



for a few small shadows. In different parts of each lung are increase of lymph glands. Enlarged heart and marked aortic arch. Repeated Wassermann tests made on this patient were negative. Urine negative.

Diagnosis: Mitral regurgitation, cardiac hypertrophy, bronchial asthma and chronic bronchitis.

**Case 4185.** F. H., 34 years. Chauffeur and machinist. Family history shows that one child died of meningitis, probably of tuberculous origin, otherwise negative. Health was good until three months before admission, at which time the present trouble began, following influenza and pneumonia. Gave no history of asthma before being admitted to the Sanatorium. Was expectorating two ounces of muco-purulent sputum, in which tubercle bacilli were found some months before being admitted to the Sanatorium. We were, however, unable to demonstrate tubercle bacilli in the sputum, but a guinea pig inoculated with the sputum later developed generalized tuberculosis.

Physical examination showed a broad, well-rounded chest, with fair nutrition. There were moist râles and dry bronchial râles over both lungs. There was some dullness over both lungs, more marked on the right. Patient developed severe asthmatic attacks during his stay at Sanatorium and was later advised to leave on this account. Blood pressure: Systolic 104, diastolic 80.

X-ray showed shadows in the upper half of the right lung. Central portion of lung showed heavy shadow. The shadows in the left lung would indicate tuberculosis. The heart and mediastinum were widened.

Wassermann in this case was negative.

Diagnosis: Asthma with tuberculosis.

Here is a mixed asthma with tuberculosis and in spite of the fact that the tuberculosis alone would cause the asthmatic attacks, we find an enlarged heart with a widened mediastinum.

**Case 4100.** S. E. McL., 47 years. On admission to Sanatorium was a chef, but had previously been a minister of the gospel. Family history negative for tuberculosis. Had not been in good health for past three years. Complained of pain in the back and stomach; was tired, coughed, expectorated, had pain in chest and had lost thirty-five and three-fourths pounds in weight. Had a hemorrhage of about four ounces five months before entering Sanatorium. Expectorated about four ounces of mucoid sputum daily on admission, which was always negative for tubercle bacilli.

Physical examination showed a broad-chested individual who was emaciated. There was marked local dullness over the back. There were diminished breath sounds over the entire left side, with bronchial râles in both lungs. The diagnosis at this time was probably a tumor mass, with symptoms of pressure in left lung. There was a positive Wassermann. Blood pressure: Systolic 114, diastolic 86.

X-ray showed a large tumor mass, which you see on the screen. This mass was undoubtedly an aortic aneurysm.

Here the asthmatic symptoms were undoubtedly due to the pressure from the aneurysm.



Case 4100

In conclusion we wish to state:

First, that all cases which show the changes we have described here are not asthmatics.

Second, we feel that many cases with chronic asthma and bronchitis eventually do develop this picture.

Third, that the changes which occur in the chest are possibly the result of the asthma rather than the cause.

Whether these changes are brought about by infection, sclerosis of the large vessels or



Case 4895



changes in the intrathoracic pressure, we are unable to state at this time, but believe they are probably due to a combination of all of these causes.

We wish to thank Dr. J. G. Pace, Medical Director and Superintendent of the Modern Woodmen of America Sanatorium, at Woodmen, Colorado, for his kindness in permitting us to present these cases; and we also wish to thank Mr. Chas. Jenkins of the x-ray laboratory at the Modern Woodmen of America Sanatorium for his kind assistance in preparing the x-ray plates and lantern slides.

#### References.

<sup>1</sup>Smith, Wm. H. and Kilgore, Alson R., Dilatation of Arch of Aorta in Chronic Nephritis With Hypertension; *Amer. Jour. of Med.*, April, 1915.

<sup>2</sup>Martin, Chas. L., E.E., M.D., Roentgen-Ray Study of Great Vessels, *J. A. M. A.*, March 13, 1920.

#### DISCUSSION.

**Arnold Minnig, Denver:** A number of years ago, whenever we had a case of asthma we all held up our hands, but it seems to me we are getting a little light shed on this subject. Any contribution on such a subject as this is welcome. My views of asthma are a little different from the usual views, it seems to me. I had a peculiar experience when I was pathologist at the Cleveland City Hospital. We had about the same sputum results that Dr. Forney and Dr. Crouch did—always negative sputum. Time and again we would examine this sputum, and it would be negative; but I noticed that in one case, at least, the guinea pig inoculation showed extensive tuberculosis. That exactly checks up on our autopsies in a large number of cases. We never found positive sputum, but the autopsies, when these asthmatic cases died, in every case showed extensive tuberculosis. I am putting this up to you, because I know it is different from what you expect. Asthmatics are supposed to live forever, but just the same, that was the result of our findings.

It seems to me that the work of Dr. I. Chandler Walker of Boston is very illuminating. I have gotten very good results in the dispensary in Denver with autogenous vaccines. The organism I like to see grow the best is the anaerobic streptococcus. We certainly have gotten a pretty fair percentage of improvements, and I hope to report more later on this work. These x-ray pictures are illuminating, and any contribution like this is certainly welcome.

**Dr. Mullin:** What do you do—obtain a vaccine from the sputum?

**Dr. Minnig:** Yes; we are going to make a report on this later on, but we do not like a lot of organisms in the vaccine; we like to get as few as possible—in fact, we aim to select only one.

**William V. Mullin, Colorado Springs:** As long as Dr. Minnig has talked on treatment, I would like to carry it on a little way. I don't believe in asthma that one can ignore the nose and the sinuses in treatment, and I believe, Dr. Minnig, that if you only make your vaccines from the sputa alone, your results will not be as satisfactory as if you had investigated the sinuses and made your vaccine from both. The history that Dr. Forney has given in a great many of these cases stated that they followed influenza, and I am very sure a thorough investigation of the sinuses in these cases would undoubtedly show an infection of the sinuses which I believe was the primary focus in effecting a glandular condition around the hilus and around the bronchi. I believe that by injecting sinuses in cats and rabbits with India ink and infected material I have proven and demonstrated the path of lymphatic absorption. In a great number of these conditions such as asthma and bronchiectasis, the bacteriological examination of material from the diseased sinus and that obtained from the sputa will coincide.

**F. R. Spencer, Boulder:** I am in hopes that Dr. Forney, in closing the discussion, will tell us what percentage of these cases show some nasal involvement. One of the French authorities has mentioned, in recent years, a distinct relationship between sinus disease and bronchial asthma. His point is that the infection may be latent in the sinuses and yet produce asthma.

**T. R. Love, Denver:** I think these studies have been very instructive. The problem of asthma is far from being solved, and I am sure that we have some visible proof that it is anything but a pure neurosis. The nervous element is perhaps to be associated with that condition which you call anaphylaxis. Now, the relation of the nasal sinuses and tonsils and other infections in that region to asthma, I am sure we have all noted. One of the interesting things that appeals to me is this—that occasionally a patient comes to us from a lower altitude and very promptly gets relief from asthma without any treatment whatsoever. I am sure we have all seen occasional cases of that type. Others will come, and following removal of tonsils, or a removal of a nasal spur, or other drainage, obtain permanent relief. What is the essential difference between those two types? Walker, whose name has already been mentioned, apparently has demonstrated with reasonable accuracy that about fifty percent of all asthmatics are a result of protein sensitization of some form or other, and he has been doing some very remarkable and interesting work.

The doctors have had a very interesting group of cases to work with, and it seems to me that the x-ray demonstrates beyond any question whatsoever that in this type of asthma we have a local change in the bronchial tree which suggests the growth of organisms in the mucous membrane and submucous structures of that tree, and I should be very much interested to hear from the doctors next year a report of their bacteriological studies in these cases. I think there is a wonderful opportunity for them to study this out and perhaps, in such a series (even granting that some of them are associated with tuberculosis) they can give us some further light on the true bacteriology of this type of asthma.

**C. N. Meader, Denver:** In spite of the fact that we might talk indefinitely about asthma, I cannot resist the temptation to add a word to emphasize that we must remember that it is a symptom and not a disease, and that the sooner we accept this view the sooner we shall improve in diagnosis and treatment. If a patient complains of headache, we waste little time upon the symptom but investigate the underlying cause. The same should be true of asthma; it may be "essential" asthma, but it is quite likely to be secondary to disease of the sinuses, nares, or to other pathology in the respiratory system such as enlarged bronchial glands, tubercular or other pulmonary infections, thickened pleura, or to any one of a whole series of other conditions, including general metabolic disturbances. The point is that the simple diagnosis of asthma is no diagnosis at all any more than diagnosis of headache is a diagnosis. The need is to discover, if possible, the underlying cause.

**H. A. Smith, Delta:** In discussing this phase of asthma I want to ask how many of these cases had pus without tubercle bacilli?

**Dr. Crouch:** In regard to the rhinological examination and the sinuses, they were not really thoroughly examined. We made a superficial examination in a great many of these cases. I feel sure, as these nose and throat men do, that many of these cases had infection in the upper respiratory tract. Dr. Mullen demonstrated in his experiments on the sinuses that drainage was down into the bronchial lymphatics. We do have cases with the sinuses infected. However, none of these cases were proven to have sinus infection, although I am sure there was infection in the upper respiratory tract in some. In regard to Dr. Meader's statement about asthma being a symptom, we are aware of that fact. We feel that these are bronchitis cases with asthma, and that there probably is an infection rather than a protein sensitization. You can see from the slides the thickened bronchii and the thickened hili. The glands of the hili all show infection. On the other hand, you may get this bronchial infection without asthma attacks. I do not know why some will have a bronchitis with thickened bronchi and enlarged glands and have no asthma, and others will have asthmatic attacks. We have a picture of a boy twelve years old who showed these bronchial shadows, the same as an old man. He had asthmatic attacks and showed the wide mediastinum, and the whole picture that you see in these older patients.

I wish to say in regard to the treatment, we have done very little in these cases. In the majority of these men, I think, their symptoms are aggravated by the altitude. You must remember our institution is situated at a high altitude—seven thousand feet—they come there, and most of their symptoms are aggravated. For that reason, they are not kept there long. If the symptoms are aggravated, we have them leave as soon



as possible. They were not tested for protein sensitization.

In regard to tuberculosis and asthma, I don't feel—although I have no autopsy experience—that all these cases are tuberculous. They have other infections than tuberculosis that bring about this condition—influenza and infections of the upper respiratory tract, as the nose and throat. The bacteriology in these cases has not been worked out thoroughly.

In regard to the change in the aortic shadow, I feel that the change in the intrathoracic pressure has something to do with these knobs. I wanted to connect the manometer with some of these men, but it seemed too much to ask a man, merely for the curiosity of finding out how high the pressure goes during asthmatic attacks. I believe it changes, and it may have something to do with the change of the aortic arch.

**Dr. Love:** The doctor made a suggestion that perhaps we can offer something on. We all realize that when we take the pressure there is a variation of about ten millimeters between expiratory and inspiratory effort. It might be that you could make use of that point in testing this intrathoracic pressure. The pressure always shows about ten millimeters higher on expiration, and I would assume that this is due to the change in the intrathoracic pressure. It would be interesting to see if during the asthmatic attack you could demonstrate a greater difference than the ten millimeters.

### UNUSUAL COMPLICATIONS AND SEQUELAE IN THE ACUTE INFECTIONS OF CHILDHOOD FOLLOWING THE INFLUENZA EPIDEMIC: CASE REPORTS.\*

J. W. AMESSE, M.D., DENVER.

When the history of the last visitation of influenza is finally written, and all of the evidence summed up, it will occasion no surprise among those who have given much thought to epidemiological studies to find that, among the scourges of the human race, both in ancient and modern times, it has eclipsed them all.

Sweeping with uncontrollable fury over a world already prostrate from the horrors of war, it has exacted a toll of life and health and fortune comparable only to the Black Death of the fourteenth century. It is still too recent to visualize easily the proportions and the extent of the supreme tragedy of this generation, not excepting the war itself. Notwithstanding the fact that the profession in every country was mobilized, trained and presumably ready for any emergency of this character which might arise in the course of the world conflict, and despite the progress that has been made in preventive medicine during the past two decades, this calamitous pest, spreading in unknown ways and creeping insidiously among the favored and the lowly alike, fastened itself upon the entire human race with a ferocity which quite baffles description. It has been estimated that the immediate mortality from this pandemic exceeded twenty-five million, but no one has had the temerity to predict what the ultimate loss will be from subsequent manifestations of the same virus, dormant perhaps at present, but potent for infinite mischief when conditions suitable to its reawakening are again established. The bitter disappointment of the public in this country through the failure of our federal health service to arrest the westward march of the epidemic at our seaboard was reflected in caustic editorials appearing

in such journals as the Scientific American in the fall of 1918. The fact that invasions of yellow fever, cholera and plague had frequently been checked with slight loss of life and little disturbance of commerce, led us to demand the impossible when confronted with a disease about which, after all, comparatively little of scientific value is known. This inability to maintain the marvelous standard of efficiency and service established by sanitarians during the past twenty years, has been responsible, I believe, for a very heavy defection among the lay followers of modern medicine. It has unquestionably stimulated the claims of irregulars everywhere, and has opened to multitudes of otherwise stable minds the consideration of ridiculous and wholly untenable theories of disease. Those who have attempted to refute the arguments of various medical cults in their endeavor to obtain state recognition will readily endorse this opinion.

Acknowledging, however, that the profession was unprepared to meet this unparalleled outbreak, its instant response and unceasing energy in determining ways and means to cope with an exotic disease of such magnitude, accorded well with our highest traditions. Many able contributions and numerous valuable observations have been recorded to clarify our knowledge of this obscure infection; clinicians and laboratories of research are co-ordinating their work.

As a matter of fact, although there have been epidemics of so-called influenza since Biblical times and at least one in each generation has appeared in the past century, we "never learned anything from any of them except possibly the last two." (W. A. Evans) The study of previous epidemics has never been intensive and was dropped as soon as the crest of the invasion was over. So that any light, however faint, shed upon the nature of a disorder which has claimed close to half a million of our people during the past two years should be given serious attention.

Pandemics of this character do not die out; they die down. It must have occurred to all students of epidemiology that no exhibition of disease so formidable as this could disappear without leaving foci in its wake capable of lighting up new epidemics or of modifying the course of the more common diseases, in symbiotic association. For example, the epidemic of 1889-90 reappeared as influenza in '91, '92 and '93. Its major phases subsided and for the next two decades its manifestations were familiarly known as the grippe. Evans estimates that it has constituted one of the most potent factors in the increase of pulmonary affections and that since 1890, winter diseases have been more fatal, in Chicago, than the disorders of summer. He believes that the recent epidemic will profoundly influence health conditions in this country for at least a quarter of a century. Accepting this as correct, it is in the province of every conscientious practitioner to note and report such deviations from the normal progress of disease at this time as may seem to him worthy of comment. Our knowledge of many features of influenza is so nebulous; our contentions are so variable regarding its origin, its etiology and its prophylaxis, that it would seem

\*Read before the Academy of Medicine, Kansas City, November 26, 1920.



safest to reason by analogy in contrasting it with our more exact information of the other major epidemic diseases of mankind. If we take, as a suitable study, the history of bubonic plague, we find that this infection has existed since the earliest recorded history; that it appeared in epidemic form in Pelusium in the sixth century, "spreading to Byzantium, at that period the world's greatest city, and from there to Europe as far west as Ireland and lasting in epidemic form for about 200 years" (Castellani and Chalmers). "The next pandemic began in the eleventh century and continued for 300 years, reaching its climax in the fourteenth century in the great European epidemic known as the black death, gradually declining until in the seventeenth century it had left western Europe." In India after appearing in epidemic form in the eleventh, twelfth, thirteenth, fourteenth, fifteenth, sixteenth and seventeenth centuries it subsided only to erupt again in 1812. Since this date it has been endemic in that country and has occasioned outbreaks at some points every few years, uncontrollable, ineradicable and deadly. The same holds true for China where a like neglect of the very rudiments of hygiene has established bubonic plague as a perennial institution. The last pandemic began in China in 1894, spread to Bombay and from these two foci was conveyed to many ports of the Eastern and Western Hemispheres, finally infecting (1900) California and very recently establishing itself at numerous points on our Gulf coast. If there is any further proof required of the tenacity of plague infection and its innate tendency to decline but not to disappear, one has only to recall the history of the disease on our West coast. It is a story as rich in human interest as would be that of a campaign against other Oriental invaders, stronger than rodents but certainly no more cunning. In brief, plague has been again on the march for nearly a generation, challenging the best talent among our sanitarians; beaten in one area, only to conquer in another and sustaining in every respect the malevolent reputation handed down from ancient times.

During the recession of an epidemic, only ambulatory cases may be found in man and doubtless these have their origin in non-fatal cases among rats. "In India, cases of mixed infection—plague and malaria or plague and relapsing fever—are not uncommon. The diagnosis between septicemic plague and cryptogenic septicemias, due to the pneumococcus or other bacteria, as well as the differential diagnosis from typhus and typhoid fevers may be impossible without a complete bacteriological examination of the blood."

So we may find the virus of a great pestilence toxic enough to kill in a few hours, under certain conditions, and, through the intervention of unknown factors, appear later as a mere complicating agent in the course of some other infection.

During the quiescent period of plague, for example, one may note the increased frequency of furuncles, superficial abscesses, phlegmons, carbuncles, and so on, from which the bacillus pestis cannot be isolated. A similar comparison with Asiatic cholera can fairly be made, since this contagion also assumes epidemic proportions at frequent intervals. Known in India since a very remote pe-

riod, it did not become pandemic until 1826, when it spread over Europe, Africa and America, extending throughout the United States in 1832-33. About once in every generation since, there has been a considerable epidemic, affecting people in both the temperate and the torrid zones and showing the same rise and fall in virulence noted in the course of plague. In every investigation carried on in recent years, the rôle of the carrier is stressed in connection with the spread of cholera, and measures for its control must now include bacteriological examinations among the exposed as well as those manifestly ill. The disease may consequently be masked for an indefinite period, in communities lacking modern methods of sanitation, and may be conveyed long distances from these centers through ambulatory cases. Sporadic cases of cholera may readily simulate attacks of food intoxication or be so modified or complicated by coincident infections that a definite diagnosis is made difficult or impossible. It is a matter of common observation that the first case in an epidemic is practically never recognized. In endemic centers it is undoubtedly a factor in promoting enteric disease without the exhibition of the well known characteristics which have made the name of cholera so dreaded throughout the world. In the Philippines, where it was reintroduced in 1902, it has been perpetuated ever since through carriers and is very probably concerned in the numerous outbreaks of choleraic diarrhea, in which the vibrio of Koch cannot be identified.

Analagous studies may likewise be made in the spread of dengue fever and yellow fever. All of them demonstrate that epidemic disease may recede almost to the point of extinction and that indeterminate factors may renew its virulence. In our natural concern over the possible re-awakening of influenza, we should utilize fully the exact knowledge we possess of these disease congeners, and fortify ourselves with the experiences gained in their subjugation. The question of the hour, then, is not "whether influenza will return", but whether it exists at present in our midst, in dual relation with everyday disease.

The following cases are reported in support of the latter viewpoint:

Case I.—Baby K., female, age two, American; referred by Dr. H. B. Catron on February 20, 1919. The child was the youngest of six; the birth was normal and it had been breast fed. There was no history of infection and no convulsive disorders up to February 1st, when the baby developed broncho-pneumonia of a very severe type. Dr. Catron reported that the temperature was very high, the prostration extreme and at least one convulsion was noted. On February 10th, the baby seemed markedly better. It recognized the other members of the family, appetite returned and the case seemed progressing to complete recovery when it suddenly developed a convulsive seizure and became unconscious. For the next ten days it lay in this stupor, with no other manifestations of cerebral involvement. It could be aroused sufficiently to administer food but would immediately relapse into a comatose state. At the time of my examination the baby lay on its cot in an easy position with no outward sign of deep seated dis-



ease, except the extreme pallor and great emaciation. The temperature was 97, pulse 110, respirations 20; the fontanelle was closed; the pupils were widely but evenly dilated and reacted sluggishly to light; there was no Kernig or Babinski reflex, no rigidity of the neck or limbs; no tache cerebrale. Lumbar puncture showed slightly increased pressure and the examination of the spinal fluid made by Dr. E. C. Hill showed bacteria identified by him as the Pfeiffer bacillus. The urine was concentrated, the specific gravity, 1032, with a few hyalin and granular casts but no albumin present. The bowels were constipated throughout the disease. For the following ten days the baby showed no signs of returning consciousness. On February 28th it began to move restlessly and cry out; the pupils were less dilated. On March 1st it was fully roused for a few minutes and on March 2nd its mentality seemed fully restored. During the three weeks it had dropped from 28 to 13 pounds, and this loss was restored during the next two months. The recovery was complete and the parents reported it six months later in perfect health.

This case could be considered one of influenzal pneumonia or one of broncho-pneumonia with influenzal meningitis as a sequel. The ophthalmoplegic features noted in lethargic encephalitis were entirely absent. Many writers have noted the close relationship which may exist between pneumonia, meningitis and influenza. "They may follow one another in a given patient; they are apparently interchangeable in a grippal epidemic and present remarkable bacterial analogies." (Church and Peterson).

Stangl found in an analysis of 3400 cases of influenza that nearly one percent had symptoms suggestive of meningitis or of cerebral involvement. The first cases of influenzal meningitis recorded were reported by Pfuhl in 1892. Wallstein collected forty-nine cases in the literature, with five recoveries. Altogether there have been reported 105 cases and nine recoveries, sustaining the opinion of Holt that nervous disturbances of extreme grade are very rare. They are more apt to occur, however, "in infancy and childhood and the older the child, the more likely it is to recover."

Stone, Rollin Hills, Levin, C. K. Johnson, and others have reported interesting personal cases. Of 50,000 patients in the Germany army in the epidemic of 1889-90, only four developed meningitis and up to 1907 but seven had been collected, which would seem to indicate that in the late epidemic cerebral complications were more common.

Instances of encephalitis following influenza are becoming current. Sharpin reports one of these in an infant of fifteen months, taken ill January 24th, and dying February 8th. Lumbar puncture was sterile and the chief symptom was great drowsiness.

Another case of unusual interest occurred in the course of an epidemic of chicken pox in Denver, which prevailed during the spring and summer of 1920.

Joseph F., age 8, white, American; became ill with varicella on June 18, 1920; his two brothers, both senior to him, having had the disease two

weeks previously. The attack was one of moderate severity with low temperature and no constitutitonal symptoms developed until the fifth day, when with the vesicles practically all dried and the little fellow apparently making a good recovery, he suddenly began to vomit and complained of intense headache. The vomiting was most persistent, occurring about every fifteen minutes for the next forty-eight hours. While the mother was out of the room a moment, the boy attempted to reach the bathroom and fell unconscious on the floor. His sensorium partially cleared in a few hours but for the next two weeks his mind was clouded and he displayed no initiative. Answers to questions are slow. The intensity of the stupor varies at different times of the day. The bowels are obstinately constipated, responding only to enemas. Catheterization has been resorted to for retention, examination of the urine showing no pathological elements.

At this time I asked Dr. C. S. Bluemel to assume charge of the case, which now became distinctly neurological in character, and I am indebted to him for his valuable cooperation and complete bed-side notations.

**Past History:** The patient was born at full term and in normal labor, weighing seven pounds. He was bottle fed, and between ten and fifteen months, developed a severe form of rickets. At two years he had whooping cough, and at three, scarlatina. At five years, he suffered from tonsillitis, one attack being followed by hemorrhagic nephritis which confined him to bed for six weeks. Family history is entirely negative.

**Present Illness and Physical Examination:** The patient is a boy of 8, of rather slight build and undernourished. His body shows the rash of the terminal stage of chicken pox. He lies in a semistuporous state, paying no attention to his environment. The child responds intelligently when questioned, but only after the lapse of a considerable interval, and his replies are brief and inadequate. He cannot cooperate effectively in the physical examination. The muscles of the neck, trunk and extremities are hypotonic. When placed in a sitting position, his head drops forward and he falls backward on the bed, if not supported. When the arms are elevated and released, they fall limply. The knee jerks are absent. The Achilles reflexes are normal; tendon reflexes of the arms are all present, but diminished. The jaw jerk is normal as are the abdominal and the plantar. There is no evidence of impaired sensibility; the cranial nerves and eye grounds are negative throughout. Pulse is 62, blood pressure 82/38. The blood Wassermann reaction is negative as is also that of the spinal fluid. Lumbar puncture shows the pressure moderately increased; color clear; sugar normal; globulin somewhat increased, cellular elements 3 per cu. mm. (lymphocytes).

The patient was given transfusions of glucose (25%) intravenously and carefully nursed. For two weeks he seemed to neither gain nor lose, and then began to improve, recovering first his mental faculties and, much more slowly, his physical strength. At the end of a month he was quite himself and has continued well since that time. The differential diagnosis, obviously rather difficult in



the early stages of this case, was made in favor of a serous meningitis. Absence of cranial nerve palsies, especially of the third, fourth and sixth; the sudden onset and the unaltered spinal fluid, it was considered, effectually excluded encephalitis lethargica.

Instances of meningitis, or any other serious nervous complication in the course of varicella are evidently so infrequent that no mention is made of it in the literature available.

"A curious relationship between herpes zoster and chicken pox has been noted so frequently that many observers are convinced they are manifestations of the same virus. It is more probable, however, that zoster is merely a reflection of spinal cord irritation, and may also appear as a complication of syphilis when the latter is latent in the spinal meninges.

"The fact that it is occasionally associated with a distinct lesion of the central nervous system warrants the belief that systematic examinations of the spinal fluid in cases of varicella would supply valuable information." (J. A. M. A., Nov. 8, 1919.)

A further case: M. B., male, age 5½; American. Seen in consultation with Dr. Friedman and Dr. Bluemel, March 26th, 1920. The boy developed measles seven days previously. On the third day he began vomiting and complained of intense headache. Within twenty-four hours he became comatose and has remained in this condition ever since. Urine is passed regularly\* but the bowels require daily attention.

Examination: A small boy, of about 5 or 6, showing the eruption of measles in declining stage; the eyelids and the jaw are drooped; the arms and legs are semi-flexed on the trunk, flexion being greater on the right than on the left. The patient is deeply comatose, yet moans occasionally as if in pain. There is Cheyne-Stokes breathing. The arms are spastic, especially the right, and the right leg is also spastic. Right knee jerk and Achilles reflex are normal; there is slight ankle clonus and a positive Babinski. On the left the knee jerk is hardly perceptible, the Achilles reflex is absent and there are no abnormal plantar reflexes. There is slight rigidity of the neck and when the head and thighs are simultaneously flexed on the trunk, the patient is manifestly in pain.

Pupils are small, but react normally to light; eye-grounds are negative. The pulse rate is 138; respirations 42; rectal temperature 104.2. There is roughened breathing over the left apex and at the base, posteriorly. Lumbar puncture shows a sterile fluid, the cellular elements, all lymphocytes, numbering 40. The patient died five days later, the diagnosis, meningismus, secondary to measles.

Another case of measles in a child was, oddly enough, complicated similarly a few days later in the person of Baby M., age 2, taken sick on May 23rd, 1920, the rash appearing three days later. The temperature from the first was high and the baby was prostrated much more severely than its brothers and sisters, who suffered from concurrent attacks. Vomiting, severe and persistent, began on the day following the appearance of the rash; the baby became comatose in 24 hours and at the time of my first visit was lying unconscious on its bed, the head thrown back, the respiration

noisy and rapid, temperature 103, pulse 116. The mother stated that the child cried out when moved; that the urine was voided involuntarily and that the bowels were obstinately constipated. Spinal puncture made at this first visit showed a sterile fluid with the cells moderately increased (60). There was some rigidity of the neck, but no Kernig, and the eye grounds were negative. Breathing was rough over the bases, posteriorly, but there were no signs of lung involvement. The baby lay in this stupor for a day and a half when it began to move restlessly. It cried out frequently and gradually it regained consciousness, was able to swallow and took milk rather greedily. The temperature dropped to normal, the rash disappeared in the usual time, but it was immediately observed that the child had lost the power of speech. This complete aphasia continued for two months, when it began to babble much like a baby of six months, and finally learned to speak a second time, but at this writing, four months later, it stammers considerably.

This case was also considered one of serous meningitis.

Few writers mention cerebral complications in measles, unless preceded by pneumonia or otitis media, when it may readily become a secondary feature, and a most dangerous one.

Griffith describes a dull apathetic condition, exceptionally seen and continuing for weeks after the acute stage of rubeola has passed. He notes one personal case. Osler declares any major involvement of the nervous system is extremely rare. The best review is found in Skoog's recent article, "Measles: Brain Complications", in which he abstracts the scanty literature and quotes two cases in children. One of these was of the cerebellar type and the second showed meningeal involvement, followed by aphasia. Skoog rightly argues that though these invasions are uncommon, they must always be considered.

In the summer of 1919, there prevailed throughout Colorado and Wyoming a type of entero-colitis in infants, whose origin was most obscure. The infection exhibited a pronounced resistance to the usual methods of treatment; it was accompanied by great wasting, but in spite of being refractory, it did not result fatally in many instances. Some of these babies had been carefully fed, most of them had not—a few were on the breast. The disease was marked by large and frequent liquid stools, showing mucus and blood about the third day; there was marked pain and tenesmus and proctologic examinations revealed catarrhal inflammation of the rectum with superficial ulceration. Careful examination of the stools showed nothing more than the usual findings in cases of severe ileo-colitis. Of thirty cases followed to termination, two died, but autopsy was not permitted. One case in a male child of ten months, weighing 18 pounds at onset, dragged on for nine weeks, relapses being frequent and emaciation extreme. The baby finally made a complete recovery after a month's careful nursing at the Children's Hospital.

In the country districts this disorder was commonly known as summer influenza, probably for want of a better classification, but certainly it pre-



sented a disease syndrome of unusual interest to the pediatrician.

Of equal concern was the appearance of an epi-zootic beginning about the middle of September, 1920, and continuing to the present, in which the upper respiratory tract is chiefly involved. In children it has been peculiarly stubborn to treatment, and has shown a marked tendency to involvement of the middle ear and the cervical lymph nodes. There is usually a coryza noted at first, with slight fever, and within a day or two an acute pharyngitis develops, the patient complaining of much soreness and dryness of the throat. Tonsillitis and stomatitis are commonly coincident but more frequently there follows an acute laryngitis with harsh, brassy cough disturbing greatly rest and sleep. This catarrhal affection has been extremely obstinate in management. Often the cough has yielded only slightly to codein, and cases have gone several weeks before recovery begins. Bacteriological examinations are inconclusive, the usual flora of the respiratory tract is present, sometimes accompanied by the bacillus of Pfeiffer, but usually not. It must be considered an acute infectious rhino-pharyngitis of unknown causation.

#### Summary.

The foregoing observations are submitted to sustain in a small measure the contention of many clinicians that influenza has subsided rather than disappeared; that many unusual features noted in the study of more common disorders justify the impression that we are frequently dealing with a double infection.

#### Conclusions.

1. The nature of the virus in so-called influenza is not understood.
2. It is probable that there are varieties of influenza, as there are of pneumonia, plague and other acute infections.
3. From experience with analogous pandemics, whose etiological factors have been definitely classified, we may assume that there now exist foci throughout the world, potential agents in the creation of new epidemics and a deviation from the normal course of intercurrent diseases.

624 Metropolitan Bldg.

#### THE IMPORTANCE TO THE COMMUNITY OF PROVISION FOR THE FEEBLE-MINDED.\*

C. L. PERSHING, M. D., DENVER.

Three million, five hundred thousand men were mobilized in the United States for the war. Of these twenty-six thousand, five hundred were found to be unfit for any kind of military service on account of mental defectiveness.

At the beginning it was estimated that in an army as large as ours about fifty thousand men would be discharged for delinquency. This was based on experience in previous wars. As a matter of fact there were only five thousand soldiers so discharged and only ten per cent of these were nervous and mental cases. The discrepancy between the estimate and the fact is certainly due to the weeding out of the defec-

tives by the examining boards. If they had gotten into the service, all of them would have been delinquent and the estimate would have been more nearly correct. It naturally follows that if the same method were pursued in civil life and these individuals were segregated and taken care of, there would be a similar falling off in delinquency and crime.

The newspapers have recently stated that there are several thousand cases of "shell shock" in this country that are being taken care of by the Public Health Service. This is a mistake. There were very few cases of war neurosis, commonly called "shell shock", in our army. These cases now under the care of the Public Health Service are the mental defectives who were mobilized but thrown out by the examining boards without seeing active service.

Dr. Bailey who had charge of this work under the Surgeon General says that there are about one hundred and sixty-five thousand male defectives between the ages of eighteen and forty-five years in the United States. In 1915, Dr. Goddard of the Vineland Training School said that three hundred to four hundred thousand was a conservative estimate at that time, including all ages and that only about twenty-four thousand of these were being properly cared for. It has been estimated by various investigators that from one to two percent of school children are defective. One percent is probably a conservative estimate.

The feeble minded who are not properly cared for are a burden and a menace to the community. They make up a large proportion of the inmates of our poor houses, jails and various institutions. They are often released from these places, only to be returned later. From them the ranks of the paupers, the criminals and the prostitutes are largely recruited.

In a recent survey of the state of Georgia by Dr. V. V. Anderson, it was found that of one hundred children from the juvenile court of Atlanta seventeen percent were feeble minded; of one hundred and thirteen boys from the Fulton County Reformatory seventeen percent; of one hundred and twelve boys from the State Reformatory for boys twenty-seven percent; of one hundred girls from the Georgia Training School for girls twenty-seven percent were feeble-minded and sixty-nine percent not strictly normal. Many of these cases were old offenders who had been in the juvenile court and these institutions several times before. Dr. Anderson remarks "Simply trying out these children again and again on probation or sentencing them to short terms will never solve the problem or prevent the careers that these unfortunates give promise of developing.

"These feeble minded girls will never be able to take their place in society and compete with their normal fellows. Nevertheless at the age of twenty-one they will be returned to the community. Though adult in years and fully grown in their physical development, they will still remain mental children with the intellectual level of eight, nine and ten years and with a corre-

\*Read before the Medical Society of the City and County of Denver, February 15, 1921.



sponding degree of self control, moral judgment and discrimination."

Some of the offenses committed by these Georgia delinquents were robbery, burglary, forgery, arson, assault and battery and sex offenses.

A few years ago Dr. Bluemel of Denver examined two hundred delinquents in the juvenile court of the City and County of Denver. Of one hundred boys on probation six percent were feeble minded; of fifty boys in the State Industrial School, eighteen percent; of fifty girls in the Girls' Industrial School, fifty-six percent. Dr. Bluemel tells me that under the law these girls are turned loose on the community at the age of eighteen.

The relation of feeble-mindedness to prostitution is shown by a report of a committee of the legislature of Massachusetts in 1914. Of three hundred immoral women of varying ages one hundred and fifty-four or fifty-one percent were found to be feeble-minded and this agrees approximately with the results of several similar investigations in other states.

In a report by Anne Moore, Ph. D., on the feeble-minded in New York stress is laid on the proclivity of the mental defective for setting fire to buildings. The investigator states that often such offenders are paroled after a short term in prison or given entire freedom.

In New York City between the dates of February 1 and July 12, 1910, sixteen fires occurred in the district bounded by Fifth and Lexington avenues and 108th and 109th streets, all in twenty-family, five story tenements and all of similar incendiary origin. These fires were traced to a feeble-minded youth, who had no motive for the deeds except a desire for excitement. When he visited one of the buildings to deliver goods, he would light a bundle of papers, which he had saturated with kerosene from a bottle that he carried with him, and leave them in a hallway or in the corner of a stairway. He was caught and convicted on the sixteenth fire and put in an insane asylum. A feeble-minded man twenty-five years of age started forty-five fires within three months. The loss was estimated at a quarter of a million dollars. At his trial he was declared sane and was put in prison. After thirteen months he was released on parole and finally won his absolute release.

In Massachusetts a feeble-minded boy set fire to his grandfather's house and afterward to a stable in Gloucester. He was sent to a reform school for two and a half years and after his release set fire to various houses. He was caught and spent four years in Charlestown prison. He was then paroled on condition that he go to another state. He came to New York and set fire to a barn and to the Bayside Yacht Club. He was caught and convicted and sent to Sing Sing. The cost of this kind of thing to the community of course is enormous. Even the cost of the legal proceedings involved is no small item.

Murders have been committed by mental defectives. In some cases these have been startling crimes that shocked the civilized world.

Guiteau, who killed President Garfield, came of degenerate stock. There were mental defectives and insanity in his family. Guiteau himself was a ne'er-do-well who had previously been arrested in New York on account of annoying a young woman. He seems to have had a paranoiac trend and his may have been a case of dementia precox. This question of diagnosis however is only one of academic interest. The important point is that under a proper system of provision for the feeble-minded, he would have been removed from society and taken care of before he committed murder. He was probably considered feeble-minded rather than insane and therefore allowed to go at large.

Czolgosz, who shot President McKinley, was never considered well balanced. He had what is known as the "shut in" disposition, unsocial and morose. There is no evidence that he was an anarchist.

Prendergast who murdered Mayor Harrison of Chicago was probably of the same type.

It is perfectly evident that the feeble-minded are a menace to society. That they are equally a menace to the race is due to the fact that mental defect is incurable, that it is inherited and that the defectives are twice as prolific as normal people. Fortunately their numbers are somewhat diminished by their being more vulnerable to disease than normal people. Dr. Goddard says that the menace of the problem comes from the fact that a quarter of a million defectives who inherited their condition are transmitting that condition to their offspring. Not only the manifestly feeble-minded but also some normal persons who have had feeble-minded progenitors transmit feeble-mindedness to their descendants. To quote from Goddard, "There are six possible kinds of matings, giving rise to six kinds of families. If a normal man marries a normal woman, the children are all normal and out of the six possibilities that is the only one which is entirely good. Second, if a feeble-minded man marries a feeble-minded woman, all the children are feeble-minded. In this case the only hope is segregation or sterilization of all the children. Third, if one parent is feeble-minded and the other normal, all of the children may be normal but all of them can transmit defectiveness. We can not segregate or sterilize all of these people but from a marriage between two of this kind, that is each of whom had one feeble-minded parent, we have one feeble-minded child to three normal ones, but of the normal ones two can transmit the defect. There is only one child out of four who can never transmit feeble-mindedness.

"In the case of one of these normal persons who can transmit defectiveness marrying a person, both of whose parents were normal, all the children are normal but one-half of them can transmit the defect."

The only way to solve this problem and prevent the deterioration of the race is by hunting out these defective persons, segregating them and preventing their reproducing. Even if this is systematically carried out, the problem is so



complex that it will be years before any impression is made.

Perhaps in doing this mistakes will be made and persons who were at first supposed to be feeble-minded will be found later to be only dull or backward and will be returned to society; or perhaps improvements will be made in methods of diagnosis and mistakes avoided. The present methods have not escaped criticism from trained workers familiar with them. The worst thing possible is to do as we have been doing and allow these people to go about freely and propagate their kind. In some instances in the past where they have gotten into poorhouses, the authorities through sentimentality or mistaken moral ideas have encouraged them to marry.

As a practical illustration of what goes on about us let us consider the "Kallikak Family" which was investigated by the training school for feeble-minded at Vineland, New Jersey. Deborah Kallikak was a defective girl in the Vineland institution. By two years of research her family connections were traced through six generations back to Martin Kallikak. This man belonged to a good New Jersey family of revolutionary times and was himself a soldier in the revolutionary war. He became acquainted with a feeble-minded girl and by her was the father of an illegitimate son who was named Martin Kallikak, Jr.

After the war Martin, Sr., came home, married and had seven normal legitimate children. Martin, Jr., who was feeble-minded, married and had nine children. Of these two were normal, five were feeble-minded, the mentality of one was not determined and one died in infancy. From these beginnings we have two families originating in and living in the same neighborhood and environment, but the one family descended from a normal man and a normal woman and the other from the same man and a feeble-minded woman. Dr. Goddard says "we thus have a natural experiment of remarkable value to the sociologist and the student of heredity."

From Martin Kallikak, Jr., the illegitimate, feeble-minded son of Martin, Sr., there are four hundred and eighty descendants.

There is conclusive proof that one hundred and forty-three of these were feeble-minded and that forty-six were normal, while as to the rest the facts are unknown or doubtful. Thirty-six were illegitimate and thirty-three were immoral persons, mostly prostitutes. Twenty-four were confirmed alcoholics. There were three epileptics. Eighty-two died in infancy. Three were criminals. Eight kept houses of ill-fame.

The descendants of Martin Kallikak, Sr., by his wife number four hundred and ninety-six. They were good representative citizens, doctors, lawyers, judges, educators, men and women prominent in every phase of social life. There have been no feeble-minded among them, no immoral women. There has been no epilepsy, no criminals. Only fifteen children have died in infancy.

It is apparent that if the feeble-minded girl who was the progenitor of the feeble-minded

branch had been properly taken care of, a great deal of vice, crime, suffering and unnecessary expense to society could have been prevented.

The above account presents a rather dark picture but it is not quite as bad as it seems. The social condition is amenable to treatment if the disease itself is not. Judging by reports from eastern institutions, it is surprising how well these apparently hopeless individuals can get along when helped and guided in a favorable environment.

One reason they do not get along outside of institutions is because they are teased and taken advantage of by their more fortunate fellows. The feeble-minded woman especially seems to be the legitimate prey of a certain type of normal man. Only a few of these defectives are murderers or pyromaniacs. A great many of them are more simple-minded and helpless than bad and would get along fairly well if only let alone. The popular idea that they are over sexed is wrong. They get into sexual difficulties on account of weakness and lack of inhibition. It is more a negative than a positive trait.

The ideal institution for this kind of public charge is a farm colony with plenty of land and many, one or two story, inexpensive buildings. The ones that can get along together are grouped together and are kept busy at whatever they can do. Many are good farmers and many can take care of horses and cattle and in this way become at least partially self supporting. An important part of the business of running such an institution is to provide sports and amusements for holidays and leisure time.

Dr. Moore sums up the financial side of the question as follows: "The initial cost of segregating defectives would be great, but the saving effected by correcting our present lax methods would be greater. As tax bills are not itemized the ordinary citizen does not realize that he is at present paying for the unrestrained presence of the feeble-minded. An added tax for their segregation would be an apparent rather than a real increase, for through segregation of defectives the number of criminals, the number of prisoners, the cost of trials, the demand on public and private charity would be decreased and as control of hereditary conditions resulted in decrease in the number of defectives and training rendered many of them self-supporting, the expenditure necessary for their maintenance would from year to year grow less."

216 Metropolitan Building.

#### NEW AND NONOFFICIAL REMEDIES.

During February the following articles were accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Armour & Co.: Corpus Luteum Tablets, 5 grains.  
David B. Levy: DuBois Iodoleine, Injectable, Ampoules, 2 Cc.

E. R. Squibb & Sons: Fat-Free Tincture Digitalis.

**WHY NOT LOOK THROUGH THE ADVERTISING PAGES OF COLORADO MEDICINE AND SEE WHETHER SOMETHING YOU ARE NEEDING CANNOT BE ORDERED FROM A FIRM THAT PATRONIZES YOUR JOURNAL? SOME OF THESE ADS HAVE COUPONS FOR YOUR USE IN ASKING FOR SAMPLES.**



## News Notes

Dr. Gerald B. Webb of Colorado Springs will represent the United States at the first meeting of the International Union Against Tuberculosis, which will be held in London, July 26 to 28.

Dr. C. S. Bluemel of Denver was united in marriage March 3, 1921, to Miss Eleanor Hensley of Denver.

Dr. James Rae Arneill of Denver was elected second vice president of the American Congress on Internal Medicine at its recent annual meeting. Another national society officer to Colorado's credit.

The Denver Times of February 14 contains a short editorial commenting favorably upon the results of antityphoid vaccination in the French and American armies and remarking that if the suggested compulsory vaccination of young people in France works well, it should do the same in this country. Congratulations to this writer who can discuss plain medical facts without a desire to controvert them by mystic juggling.

New members of the State Board of Health appointed by the governor are Drs. J. M. Barney, Tracy R. Love and G. K. Olmsted.

Dr. John Wenk of Loveland is in Boston, doing clinical postgraduate work at the Massachusetts General Hospital.

Dr. J. L. Mortimer of Denver has changed his office from room 549 to room 541, Metropolitan building.

A physician experienced in general practice wants a position in a mining camp or as assistant to a busy doctor, on a salary basis. Address Dr. R. Gutstein, National Jewish Hospital, Denver.

Several constituent society reports tell of official endorsement by those societies of the State Hospital and Medical School bill, with notification of their action to the senators and representatives of their respective districts.

The Denver Municipal Tuberculosis Dispensary has opened a special clinic for children, especially for contact cases, with Dr. Wiley Jones as physician in charge. Hours every Saturday from 9 to 10 a. m.

### Otero County News.

Dr. Robert M. Pollock, Rocky Ford, a well known member of the profession, has been seriously ill with an empyema. He is reported to be improving at this time.

Dr. A. L. Stubbs, La Junta, recently broke one of the bones of his right foot. The doctor fell into an open cistern in the dark hours of the night.

Dr. R. S. Johnston, La Junta, spent the month of January in Chicago, taking a postgraduate course in internal medicine.

### Pueblo County News.

Dr. Philip Work left the early part of February for Philadelphia, where he will take up special work in the anatomy of the brain and the subject of brain tumor at the clinic of Frazier and Wisenberg. He expects to be gone about eight weeks.

Dr. A. L. Fugard and wife, who have been in Santa Monica, Calif., for the past year for the benefit of Mrs. Fugard's health, have returned to Pueblo as Mrs. Fugard did not improve as much as was expected.

Dr. Hubert Work has been under the weather, suffering from an attack of acute streptococcic sore throat.

Drs. F. E. Wallace, J. J. Pattee and F. J. Peirce attended the Colorado Ophthalmological Society meeting in Denver in the early part of February.

### New Officers of the American Congress on Internal Medicine.

At the annual meeting of the members of the American Congress on Internal Medicine, held at Baltimore, Md., week of February 21-26, the following officers were elected:

President—Dr. Sydney R. Miller, Baltimore, Md., Clinical Professor of Medicine, Johns Hopkins University.

Vice President—Dr. Ellsworth S. Smith, St. Louis, Mo., Professor of Medicine, Washington University.

Second Vice President—Dr. James Rae Arneill, Denver, Colo., Professor of Clinical Medicine, University of Colorado.

Secretary-General—Dr. Frank Smithies, Chicago, Ill., Associate Professor of Medicine, University of Illinois.

Treasurer—Dr. Clement R. Jones, Pittsburgh,

Pa., Professor of Medicine, University of Pittsburgh.

### New Officers of American College of Physicians.

At the annual meeting of the officers and councilors of the American College of Physicians, held at Baltimore, Md., February 25, 1921, the following officers were elected:

President—Dr. James M. Anders, Philadelphia, Pa., Professor of Medicine, Graduate School of Medicine, University of Pennsylvania.

Vice President—Dr. Frederick Tice, Chicago, Ill., Professor of Medicine, University of Illinois.

Second Vice President—Dr. C. C. Bass, New Orleans, La., Professor of Research Medicine, Tulane University.

Secretary-General—Dr. Frank Smithies, Chicago, Ill., Associate Professor, University of Illinois.

Treasurer—Dr. Clement R. Jones, Pittsburgh, Pa., Professor of Medicine, University of Pittsburgh.

### DEATHS.

Dr. Pierre Von der Smith of Denver died February 14, 1921, of pneumonia, at the age of sixty-eight, having practiced in Colorado since 1888. He was for many years a respected member of the Denver society.

Dr. W. S. Duboff, senior physician of the Jewish Consumptives' Relief Society Sanatorium, Denver, died February 7, 1921, at the age of thirty-one. He came to Denver four years ago from Brooklyn, and was identified with the Medical Society of the City and County of Denver at the time of his death. He was a graduate of Columbia University.

Dr. Charles Arthur Ellis of Denver died March 6, 1921, at the age of fifty-two, from a severe streptococcic infection which began in the middle ear. An imperative mastoid operation was done early and a sinus extension of the infection apparently subsided, but later meningitis and a general septicemic condition occurred, the immediate cause of death being streptococcic pneumonia. Dr. Ellis received his degree in medicine from the Buffalo Medical School and did postgraduate work in Edinburgh. He had practiced in Denver fourteen years and was a valued member of the Denver Society.

## Medical Societies

### COLORADO OPHTHALMOLOGICAL.

The regular meeting of the Colorado Ophthalmological Society was held on January 15, 1921, in the assembly hall of the Medical Society of the City and County of Denver, Dr. W. F. Matson presiding.

W. C. and W. M. Bane, Denver, again presented the woman shown at the December meeting on account of retrobulbar neuritis. There had been steady improvement in vision following submucous resection of the septum and draining of the sphenoids and ethmoids. Discussed by E. R. Neeper, Melville Black, G. F. Libby, D. H. Coover, W. C. Finnoff, W. H. Crisp and F. R. Spencer.

W. C. and W. M. Bane, Denver, again presented the woman shown at the November meeting on account of disciform keratitis. The opacity was thinner and blood vessels had entered every part of the diseased area. Discussed by G. F. Libby and W. C. Bane.

W. C. and W. M. Bane, Denver, again presented the man shown at the December meeting on account of a small epithelioma at the margin of the lower eyelid. The diseased tissue had been removed and the raw area cauterized with trichloroacetic acid; and one dose of radium had just been used. Discussed by E. M. Marbourg, F. R. Spencer and Melville Black.

C. E. Walker, Denver, presented a man aged fifty-five years upon whose left eye a capsulotomy had been successfully performed thirty-three years after injury by a piece of wire which had passed through the cornea and lens.

C. E. Walker, Denver, presented a man in whom sixteen years after cataract extraction complete spontaneous rupture of the posterior capsule of the lens was found to have occurred.

H. R. Stilwill and Melville Black, Denver, presented a woman who for many years had suffered from repeated attacks of iridocyclitis for which no definite cause could be discovered. It was suggested that the patient should be tested for an old gonorrheal infection. Discussed by E. M. Marbourg, G. F. Libby, E. R. Neeper and C. E. Walker.



Melville Black, Denver, presented a patient on account of the presence in the vitreous of each eye of a great number of glistening particles. The case was either one of cholesterin or of asteroid hyalitis. Discussed by Edward Jackson.

W. C. Finnoff, Denver, presented a case of bilateral congenital dislocation of the crystalline lens, the most striking feature of the case being that the upper part of each iris was pushed forward against the posterior surface of the cornea. Discussed by F. R. Spencer and Edward Jackson.

W. F. Matson, Denver, presented a man on whose right eye posterior sclerotomy had been done for glaucoma due to dislocation of the lens into the vitreous, the dislocation having resulted remotely from a blow on the eye which occurred in 1882.

C. O. Eigler, Denver, presented a man in whom a piece of steel which had lodged in the eye twenty-five years previously was still held firmly between the cornea and crystalline lens. The eye was quiet. Discussed by C. E. Walker and Edward Jackson.

WM. H. CRISP,  
Secretary.

#### EL PASO COUNTY.

The regular monthly meeting of the **El Paso County Medical Society** was held in the Parish House of the Grace Episcopal Church Wednesday evening, February 9th.

Forty members and one visitor were present.

Dr. Gilbert appointed the following committees:  
Program: Drs. M. O. Shivers, J. B. Hartwell, G. B. Gilbert.

Library: Drs. S. W. Schaefer, G. A. Boyd, G. B. Gilbert, C. E. Richmond.

Entertainment: Drs. T. R. Knowles, Thomas James, J. B. Crouch.

Dr. E. A. Peterson of Denver gave a most interesting talk on "The Newer Findings of Blood Chemistry and Basal Metabolism in Reference to Clinical Medicine."

The El Paso County Medical Society is glad to hear papers from men in other societies and thinks the exchange of ideas beneficial.

Drs. S. T. Chapman and J. A. Neuman of Cragmoor Sanatorium were elected to membership.

Arrangements have been made with the Public Library for rooms in which the society can place its medical library so that it will be convenient to use for reference.

The society hopes to have a permanent home in the future.

C. E. RICHMOND,  
Secretary.

#### FREMONT COUNTY.

Regular meeting of the **Fremont County Medical Society** was held February 28, 1921, in Dr. W. T. Little's office, Canon City. Members present: Drs. Adkinson, Wilkinson, Orendorff, Little, C. H. Graves, H. C. Graves, Rupert, Hutton, Webb, Moore, Ashley and the speaker of the evening, Dr. E. A. Peterson.

The Society indorsed the bill providing for the Medical School and State Hospital, and the secretary was instructed to so inform our state senator and representative. Dr. E. A. Peterson then addressed the Society on "The Newer Findings of Blood Chemistry and Basal Metabolism in Reference to Clinical Medicine." This lecture was very instructive and practical, dealing with the technic employed and going into details relative to the benefits to be derived. It dealt, among other things, with the recognition and treatment of acidosis. The speaker showed a deep grasp of the subject and in replying to the numerous questions asked by different members he gave in a pleasing manner valuable and useful instructions relative to the interpretation of his subject.

The next paper was by Dr. R. C. Adkinson on "The Treatment of Pneumonia," which was short and to the point and elicited a wide discussion. The point brought out was the value of vaccines and serums in certain types of pneumonia.

OTIS ORENDORFF, Secretary.

#### NORTHEAST COLORADO.

The **Northeast Colorado Medical Society** met in Sterling February 10, 1921, at 1:00 p. m. A large proportion of the members in Sterling were present.

Dr. E. A. Peterson of Denver read a very instructive paper on "Basal Metabolism and Blood Chemistry."

E. P. HUMMEL, Reporter.

#### PUEBLO CLINICAL AND PATHOLOGICAL.

The regular monthly meeting of the **Pueblo Clinical and Pathological Society** was held as a dinner meeting February 9, 1921, at 7 p. m. Dr. J. C. Epler was appointed critic. The following program was presented and discussion entered into by the twenty members present:

Dr. H. T. Low, "Charcot Joints; Case Presentation;" Dr. W. Lucas, "Acute Pulmonary Oedema;" Dr. C. W. Maynard, "Blood Count as Exhibited in Children;" Dr. J. J. Pattee, "Secondary Hemorrhage Following Tonsil Operation."

Dr. Low's paper:

**Charcot Joints.** Presentation of interesting case.

Man, aged 42. Iron moulder, married, one child. Came January, 1920, for the relief of a painless swelling in the left shoulder joint.

Past history: Always in good health until 1918, when he had influenza, complicated with bilateral pneumonia. Says he has had trouble with stomach since. Food does not digest. Pain after meals. Extremely constipated. Denies lues or gonorrhea.

Family history: Negative.

Present illness: One month previous to this examination he developed, without any apparent cause, a swelling of the left shoulder. At first this was painless, but as the pressure from fluid in the joint became greater, he noticed some pain.

Examination of shoulder: A large swelling of the left shoulder, more prominent anteriorly; does not pit upon pressure; not painful to pressure. A feeling of fluctuation is present. The surface is pale and not that of abscess type.

X-ray shows erosion of inner third of articulating surface of the head of humerus, soft parts infiltrated with deposits of opaque material.

General examination: Heart and lungs, normal. Pupils react to distance, but slowly to light. Patella reflexes retarded. Rhomberg present. There is a slightly ataxic gait. Blood Wassermann 4 plus.

Diagnosis: Charcot left shoulder joint. Beginning tabes.

Treatment and results: Two courses of six injections each of neoarsphenamin, increasing from 4.5 grains to 9 grains. Mercuric chloride intramuscular injections. Sodium iodide intravenously. Drainage of shoulder joint because increased pressure of fluid was beginning to cause pain. Swelling subsided and there was some atrophy of muscles around the joint. Inability to extend arm to any great degree. Humerus could be pushed or pulled into almost any position desired.

Patient discontinued treatment in about two months and disappeared until November, 1920, when he returned with the same condition manifesting itself in the right shoulder. X-ray reveals destruction of head of humerus and infiltration of soft parts with flakey opaque particles. Tabetic symptoms all markedly increased and patient is now suffering with gastric crises.

The interesting features are. 1. The occurrence of a second Charcot joint in same patient almost one year after the first joint.

2. The appearance of both without history of an initial injury such as a spontaneous fracture, etc.

#### DISCUSSION.

C. W. Thompson: There are two types, atrophic and hypertrophic. Charcot joints are simulated in hysteria, this, however, is very painful. X-ray gives us the proper diagnosis.

W. T. H. Baker: This is an unusual case because both joints are involved, which is out of the ordinary.

J. C. Epler: You will notice the X-ray plates show a partial attempt at repair. At the first aspiration we got very thin serum. Treatment was started and a week later there was a relative consistency. Prognosis I consider very doubtful.

H. M. Thompson: Quite important to know the eye grounds. If this man lives long, pupils will likely become fixed.

H. T. Low: In closing stated Dr. J. B. Murphy had done numerous operations in which the joints were absolutely fixed by nailing, osseous growths taking place. Useful limbs were thus secured.

Dr. Lucas' paper:

#### Acute Pulmonary Edema.

Mrs. K., age 20. Para 2. One miscarriage. Healthy Italo-American woman. Has compensated mitral regurgitation of several years' standing following rheumatism. No history or evidence of acute or chronic tuberculosis.

I attended her on the occasion of a spontaneous abortion about twenty months ago. First preg-



nancy five years ago; was said to have been normal in every way. She was delivered by a midwife. There are no lacerations of cervix or perineum. She got up on the fifth day without any unusual difficulty. There is neither history or evidence of venereal trouble or syphilis. She had not recently been having colds or other sickness.

On November 1, 1920, she was delivered of a baby weighing about three pounds, by her mother, who is a midwife, an Italian woman of very moderate intelligence. On November 5th, at 2 p. m., she walked into the room adjoining and sat on a chair for about two hours. This was the first time she had been up. She then returned to her bed, apparently no worse, so far as I could learn. At 7 o'clock some of her friends called and gave her a pound box of chocolate creams. It is reported that she ate almost the entire quantity herself. At 12:30 o'clock she experienced shortness of breath and a troublesome cough, both of which increased with such severity that they became so alarmed they called me at 1 o'clock. When I arrived she was sitting propped up in bed, suffering from intense dyspnea and almost incessant coughing. There were a great many râles in the chest, and she was spitting large mouthfuls of fine, frothy, bloody sputum. She was not cyanotic, but her features indicated great physical and mental anguish; there was no pain in the chest. My first impression, on arrival, was that she was suffering from pneumonia, I not having seen the case previously, but as she had no fever whatever, I had to discard the idea of pneumonia. I at once gave her one-sixth grain morphine and 1/150 grain atropine hypodermically, thinking that she had acute pulmonary edema. After waiting for one-half hour, with very little if any abatement of symptoms, I gave her one-sixth more morphine and would have given her atropine, but had no more with me. Even this dose did not clear up the symptoms, and after waiting another half hour, I gave her one-eighth more morphine. After about fifteen or twenty minutes her condition became improved and, after remaining with her for two and one-half hours, I was able to leave her very much improved with very little cough and shortness of breath. There was no dullness on percussion. There were moist râles and coarse râles everywhere in the chest. I called upon her the next morning at 8 o'clock. She was lying in bed smiling, coughing occasionally, and the spitting of blood had almost ceased. There was no fever. Her pulse was 100. At 2 p. m. I again called to see her. She was sitting up in bed, smiling, without coughing or râles of any consequence, and said she was feeling as well as she ever had.

My idea of this case is that she dislodged a small clot from the uterine sinuses, either when she got up and walked into the kitchen, or when she vomited from eating the candy at 10 o'clock. This formed an embolus which must have caused the closing of some of the pulmonary vessels, which in turn caused the pulmonary edema. I believe adrenalin chloride would have been a good drug to use in this case, but it was impossible at that time of the night to secure adrenalin chloride, and I had none with me.

I should have mentioned that her urine was examined the next day and was found to be normal.

Aside from acute or chronic heart disease, acute pulmonary edema is most apt to occur as a result of toxemia, such as an acute infectious disease. In pre-eclamptic conditions we may have an acute pulmonary edema as a closing scene, as well as coma or convulsions. Other causes may be mechanical, and I believe this case to have been due to embolism and infarction. This case was also associated with chronic valvular heart disease.

#### DISCUSSION.

Dr. W. T. H. Baker: Babcock says, "With myocardial trouble any exposure is apt to bring the condition on." He cited a case which made a slow recovery. His treatment was morphin and adrenalin.

Dr. J. W. Craighead: Cited a case in which there was double involvement. He could follow the fluid as it rose in the lungs, which occurred very rapidly. You will find heart conditions in these cases.

Dr. C. W. Streamer: Arose to make inquiry concerning the use of heavy doses of atropine.

Dr. W. Lucas: In closing, stated the condition of his patient was very alarming and he had to use remedies at hand. Would have used more atropine or adrenalin or both had he had them at hand. Causative factors are heart pathology, faulty metabolism and toxemia.

Dr. Maynard's paper:

#### Blood Count as Exhibited in Children.

The interpretation of total leukocyte and differential leukocyte counts in children must be made only when keeping in mind two points of difference between children and adult blood: First, that the blood forming organs of children react much more easily and quickly to stimuli, so that a high leukocyte count does not always mean much pathology; and second, that the lymphocyte predominates in the blood of young children, and many infections produce lymphocytosis rather than polynucleosis.

#### DISCUSSION.

Dr. J. H. Woodbridge: A count of twenty thousand is about normal in children up to twelve years of age.

Wilbur Lucas: The general man must depend largely upon the laboratory man as this is a study in itself.

C. W. Maynard: In closing, lymphocytosis cannot be as absolute in children as adults, as great variations are encountered. Different diseases also show different findings and a certain finding may not hold in all children below twelve years of age.

Dr. Pattee's paper:

#### Secondary Hemorrhage After Tonsil Operation.

October 20, 1920, I was asked by the family physician to remove the tonsils in the case of R. C., male, 29 years of age, married, American, dairyman, who gave negative family history as to hemorrhage. History of four attacks of tonsillitis in six years. Had mild articular rheumatism twice. Physician anxious to have him operated because of acute rheumatism of two weeks' duration. Temperature, normal; pulse, 74, but right knee swollen and pain in joints.

Operated October 20, under general anesthesia. Large tonsils with capsules removed by Sluder method. Post-operative condition uneventful. One week after the operation I was called to relieve slow bleeding of left side of one-half hour's duration. There was an area the size of a dime unhealed, but apparently no sloughing. Compression easily stopped the hemorrhage, which was slow and of moderate quantity.

After three days it recurred, but ceased after one and one-half hours. A third occurrence after four days more was difficult to check by compression. I sutured a small pack into the fossa. The pack was not entirely buried, as the upper and lower side of the little sheaf of gauze came away on the fifth day without slough or apparent damage.

Four days later, i.e., nine days after applying the pack, patient had moderate amount of slow oozing for one and one-half hours, which ceased spontaneously. No further hemorrhage.

#### DISCUSSION.

F. Peirce: Extensive experience with "hard boiled" tonsils shows they will bleed with half a chance. He cited a case of a child, blood clotting time four and one-half minutes. He used a La Voris instrument, leaving it on five minutes, but bleeding occurred and he finally sewed in a gauze pack. This is his usual procedure.

W. T. H. Baker: Has heard of tonsil extraction by X-ray.

J. H. Woodbridge: In cases of chorea or rheumatism believes it good judgment not to operate until patient is normal.

J. C. Epler: Asks Dr. Pattee how long he would leave in a gauze pack.

C. W. Maynard: Thinks bleeding may stop even if clot is left in place. He had personal experience of that kind.

H. T. Low: Thinks cause of hemorrhage in Dr. Peirce's case might have been specific.

F. E. Wallace: Thinks gauze should be the last resort from his personal experience. Says a blood clot should always be removed and hemorrhage stopped. Has had some experience with good results in intravenous injection of hemostatic serum.

Dr. Pattee, in closing: In rheumatism and chorea, thinks it best to wait until recovery. Regarding Epler's question, leave gauze pack in place several days if desired, if it is not under pressure.

F. E. WALLACE, Recorder.

#### PUEBLO COUNTY.

The Pueblo County Medical Society met at a special meeting at the Congress Hotel on February 15, 1921, at 8:00 p. m. Plates were laid for thirty-five members and several visitors.

Dr. L. H. McKinnie of Colorado Springs was the guest of honor and gave the paper of the evening. Dr. McKinnie's paper was entitled "Tumors of the Cord." In order that a clear and definite understanding of the symptoms and diagnosis of this



condition could be had, he first went into the anatomy, histology and physiology of the spinal cord in much detail.

It was evident from the terminology used in this description that many changes had been made in the past few years. After discussing the various lesions of the cord, Dr. McKinnie presented a case history of an extra-dural tumor of the sixth thoracic cord segment, in which he pointed out that a diagnosis of these conditions was not a one-man affair, but needed the closest co-operation between the internist, surgeon and neurologist.

The technic of the operative procedure was admirably described and the result at this date was all that could be expected.

The members agreed that this was one of the most scientific and classical papers ever presented to the Society, and all were unanimous in their expression of thanks and appreciation to Dr. McKinnie.

As this was not a business session, the meeting adjourned until the next regular meeting.

J. H. WOODBRIDGE, Reporter.

## Book Reviews

**The Roentgen Diagnosis of Diseases of the Alimentary Canal.** By Russell D. Carman, M. D., Head of Section of Roentgenology in the Division of Medicine, Mayo Clinic, and Professor of Roentgenology (Mayo Foundation), Graduate School of Medicine, University of Minnesota. Second Edition Thoroughly Revised. Octavo of 676 pages with 626 original illustrations. Philadelphia and London: W. B. Saunders Company. 1920. Cloth, \$8.50 net.

This is a new edition of the previous work of R. D. Carman and Albert Miller, which was published in 1917. It consists mainly in an expansion of the various chapters by the addition of further case reports and some new material in regard to interpretative features. There is some new material on tuberculous colitis and a short review of the work done recently with pneumoperitoneum. As a whole this work maintains the prestige which it gained on its original publication as being the most complete work in existence in America on the one subject of roentgenology of the gastrointestinal tract. The original edition has been fully reviewed in these columns heretofore.

F. B. S.

**The Medical Clinics of North America.** Volume 4, No. 2. (The Boston Number, September, 1920.) Octavo of 282 pages. Philadelphia and London: W. B. Saunders Company, 1920. Published Bimonthly. Price per year: Paper, \$10.00; cloth, \$14.00.

The Boston number presents the usual interesting and instructive series of clinics from the wards of the leading hospitals of Boston. This number opens with a contribution by Dr. Ida M. Cannon, who discusses the Medical-social Clinic. The diagnosis of mitral stenosis is thoroughly dealt with by Drs. Paul D. White and William D. Reid. An instructive clinic by Dr. Stanley Cobb on spastic paralysis in children follows. Vomiting as a symptom in children is clearly discussed by Dr. Maynard Ladd. The early diagnosis of acute appendicitis is dealt with by Dr. Edward H. Nichols. This is followed by a consideration of aneurysm of the descending aorta by Dr. William H. Robey, Jr. Two cases of empyema complicating pneumonia are presented by Dr. Edwin A. Locke. The modern examination of the stomach is ably discussed by Dr. Franklin W. White. This is followed by an instructive discussion on the clinical application of the renal function tests by Dr. Richard Ohler. Encephalitis is dealt with by Dr. Albert A. Horner. An analytic study of one hundred and seventeen cases of cirrhosis of the liver showing ascites and jaundice is presented by Dr. H. Archibald Nissen, and an analysis of four hundred autopsies on lobar pneumonia cases is presented by Dr. Frank B. Berry. A series of valuable cases from the medical clinic of the Children's Hospital closes this excellent number.

J. L. M.

**The Surgical Clinics of Chicago.** Volume IV, Number V. (October, 1920.) Octavo of 223 pages, 45 illustrations. Philadelphia and London: W. B. Saunders Company, 1920. Published Bimonthly. Price per year: Paper, \$12.00; Cloth, \$16.00 net.

The October, 1920, number of the Surgical Clinics of Chicago maintains its usual high standard. Whether one is interested in abdominal, genito-

urinary, or bone surgery or in the special surgery of the eye or ear or in obstetrics, he will find some contribution. A few cases are of the usual type, but most are selected from the everyday conditions that may present difficulties of judgment or technique to the average surgeon.

The clinic of E. W. and E. Andrews takes up the subject of the unsuccessful gastrojejunostomy. What should be done when the patient is worse off after the operation than before? He considers the class of cases that should be reoperated and discusses and demonstrates clearly methods of closing or only partially obstructing the artificial stoma.

Tuberculosis of the kidney masked by perinephritic abscess is the subject of David C. Straus's clinic. He gives a clear description of subcapsular nephrectomy, the best operation in this difficult class of cases. Eisendrath takes up the subject of kidney infections in detail as to their pathology and etiology.

Bevan gives a good method of treatment for chronic recurrent dislocation of the patella. He also has a case of mesenteric fibroma that had long defied correct diagnosis.

Two uncommon gall-bladder cases that are worth noting are presented by Ochsner and Dyas. Kanavel reviews the subject of hematuria.

With the exception of the surgical specialties, the other clinics present very little. Speed treats the subject of burns rather superficially. Straus's methods of blood transfusion are not particularly appealing. The salpingitis cases of McWhorter teach no lessons.

G. B. P., Jr.

**Maternitas:—A Book Concerning the Care of the Prospective Mother and Her Child,** by Charles E. Paddock, M.D., Professor of Obstetrics, Chicago Post-Graduate Medical School; Assistant Clinical Professor of Obstetrics, Rush Medical College; Attending Obstetrician, St. Luke's Hospital. Cloyd J. Head & Co., Chicago. Cloth, \$1.75.

This small book of 200 pages, printed in rather large type and upon good paper, is a splendid volume for the study and guidance of the expectant mother and the care of her child. It takes up the general care and hygiene of the pregnant woman, giving her good advice as to proper habits and living during her pregnancy, preparation for delivery and necessary equipment, in a concise and simple manner.

Much has been clearly outlined in regard to the care of the new-born child, its welfare and clothing, illness and symptoms of disease, which a mother could otherwise not obtain in most volumes of a like nature. It is easy, pleasant reading and has an appendix of useful recipes which are valuable in any home.

The book is one which fills a long-felt want and should be of great help to the young mother in the care of her new-born.

It deserves recommendation and should find its way into the homes of many prospective cases.

F. H. C.

**United States Naval Medical Bulletin,** New York Hospital Number, October, 1920. Quarterly. Published for the Information of the Medical Department of the Service. Issued by the Bureau of Medicine and Surgery Navy Department, Division of Publications, Captain J. S. Taylor, Medical Corps, U. S. Navy, in charge. Washington Government Printing Office, 1920.

According to its preface, the United States Naval Medical Bulletin is published by direction of the department for the information of the Medical and Hospital Corps of the Navy. As a medical and surgical journal for the civilian, the bulletin, at least the October, 1920, number, is not on a par with our better publications.

The number is largely taken up with presentation of interesting cases treated in the Navy department. They cover a wide range of subjects, mostly surgical, and give the scattered Navy medical officers an idea what the rest of the department is doing. The civilian doctor of Denver will find little that is new or valuable or different from his present or even discarded methods.

One article, however, which should not be overlooked is that contributed by Dr. L. Delrez of Liège, Belgium. It deals with war wounds of joints and gives methods of treatment very similar to those of Willems.



# Colorado Medicine

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## PUBLICATION COMMITTEE.

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## Editorial Comment

### THE STATE MEETING AT PUEBLO.

The next session of the State Medical Society promises to be one of unusually large attendance; if this fact is not realized by those desiring to present papers until a few weeks before the session, it will be too late. Decide upon the subject now—submit the title at the same time and the abstract of the subject matter to be treated as early as possible to insure a proper placing in the program.

### AS VACCINATION DECREASES, SMALLPOX INCREASES.

No one, unless tanned in prejudice or ignorance, can doubt the established, recorded truths of history.

These facts have conclusively demonstrated that vaccination has deprived smallpox of its virulence and frightful mortality in both civil and military life, so that it has long ceased to be a menace to the health and business of the civilized world.

Eighteenth century medicine was largely devoted to the discovery of a remedy for this dreadful pestilence—when not fatal, leaving its disfiguring mark upon every victim. Among the many distinguished men of that one hundred years, the name of the English physician, Edward Jenner, takes first rank, for in 1798 he discovered that the virus from the smallpox cow when inoculated into man prevented smallpox. Like all new discoveries, it was received with doubt and incredulity by even the medical men of the time, but its triumph was convincing and complete, and immortalized the name of one of the world's greatest benefactors.

For many years preceding 1916 the number of cases of smallpox in this country were very few, and the mortality insignificant, due to the universal practice of vaccination.

Through unjustifiable criticism from a certain class, and on account of the small mortality, thousands of people became indifferent and vaccination was not so rigidly enforced. A few recent statistics will illustrate the point of issue. From 1900 to 1920, smallpox increased about one hundred percent; Ohio, with nineteen hundred cases in 1916, had over seven thousand in 1920; Illinois and Indiana, next, show

an increase from twelve hundred in 1916 to over six thousand in 1920. The middle western, northwestern and western states show similar increase; and these significant facts are general with the exception of four states—Maryland, Pennsylvania, New Jersey and Massachusetts. In Maryland, the number of cases in 1916 was sixty-nine, and in 1920, one hundred seventy-six; Pennsylvania in 1916, ninety-seven, and in 1920, two hundred fifteen; New Jersey in 1916, nine, and in 1920, one hundred eighty-one; Massachusetts in 1916, twenty-nine, and in 1920, thirty-two. These four states have enforced vaccination rigidly. The population is homogeneous and freely intermingles throughout the country. The results admit of but one explanation and one conclusion.

The experience in other endemic, epidemic and infectious diseases affords a similar lesson. A few illustrations will suffice. When Klebs and Loeffler discovered the bacillus of diphtheria not many years ago, the mortality from this disease throughout the civilized world was eighty to eighty-five percent; as soon as the antitoxin was discovered and applied by hypodermic injection the mortality steadily and rapidly diminished until now it does not exceed five percent, and would be practically nil if antitoxin were used with the first manifestation of the disease; and if one dose should be administered on exposure to the disease it would prevent its development.

Tetanus, commonly known as lock-jaw, was one of the most justly dreaded diseases, but the bacteriologist, Nicolaier, discovered the bacillus. Every wounded soldier in the world war received a dose of antitetanic serum immediately, and as a consequence very few cases of tetanus occurred. Its timely use is a preventive.

Everybody ought to know the recent experiences in war and civil life with typhoid fever. They know its mortality in the military camps of the Spanish-American war and in the cities of all countries. Today the germ is discovered, and vaccination as a specific has robbed this disease of all its mortality to the soldier and civilian.

What more conclusive evidence can be offered in the realm of preventive medicine than is afforded by these examples. Vivisection and all scientific efforts to reveal the causes of disease, and to find a remedy, meet with adverse criticism from a few select guardians of charlatanism, who in the spirit of Chauvinism and under the cloak of personal liberty hide motives

and purposes that are inconsistent with the public weal.

The bill of rights protects every man in his civil, political and religious rights, "but it shall not be construed to justify practices inconsistent with the safety of the state."

The public health demands the enactment and enforcement of every known or necessary rule and regulation for the protection of the people from diseases which endanger health, disturb the orderly conduct of business and imperil the economic and industrial forces of society.

W. W. G.

### STATE MEDICAL SCHOOL AND HOSPITAL ASSURED.

The appropriation by our State Legislature of the sum of \$600,000 to partially meet an offer of the Rockefeller Foundation towards the building of a modern State Medical School and Hospital virtually assures the early establishment of those institutions, for the sponsors of the bill have assumed the burden of obtaining the further required amount by other means.

Earnest and thorough work by the executives of the State University was the means first of securing the co-operation of the Foundation, and second of so putting the proposition before the public and the Legislature of Colorado that the wonderful bargain opportunity could not be ignored, even in the face of a general public demand for reduction of state expenditure. It would have been stupidly penny-wise and pound-foolish if our legislators had killed the bill, and Colorado's reputation with the educators and economists of the entire United States would have been indelibly blackened. Yet if the public had not been properly aroused to the urgency of the measure by well-planned propaganda, that distasteful but necessary example of modern "efficiency," those same legislators would no doubt doggedly (and perhaps rightly) have bowed to what they believed to be their constituents' will and "saved" the taxpayers another more or less immediate expenditure. A resolution of gratitude from the medical profession is due the Twenty-third General Assembly.

In considering the features that led to the success of the measure and placing the credit where it belongs, we must not overlook the unselfishness of the Boulder profession in honorably and staunchly assisting in a measure which deprives that city of its medical school; and of the southern section of the state in magnanimously conceding to Denver a large institution which in some respects may have appeared to represent a discrimination in her favor. There was no dog-in-the-manger attitude among the out-of-Denver profession, and the work of the various county societies was a large element in influencing the Legislature.

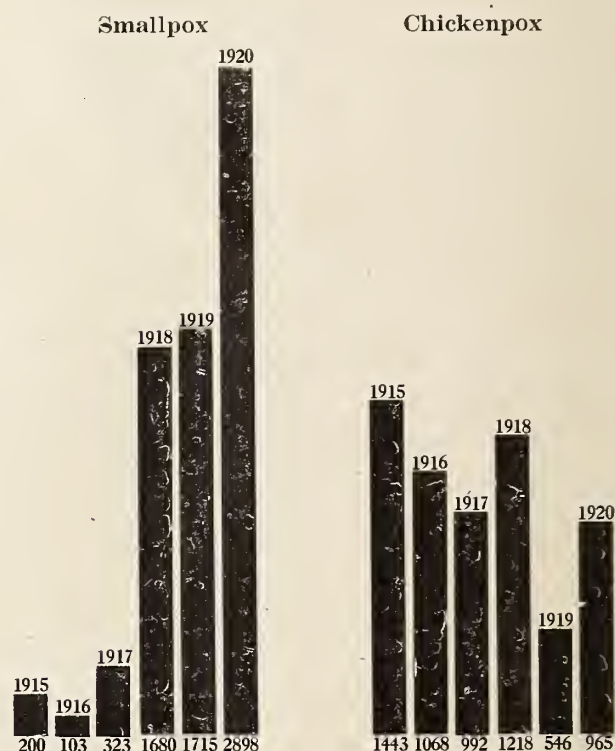
Colorado will occupy in the future the same high position in medical education which she now holds in medical practice. She had the opportunity of either holding her head high or hiding it in shame; she followed the dictates of worthy pride and common sense. Thank the

Legislature; thank the medical profession; thank the people of Colorado, and especially the humbler ones whose slight sacrifice we hope may be compensated in service.

### STATE BOARD OF HEALTH NOTES.

#### SMALLPOX AND CHICKENPOX IN COLORADO.

In common with other states we note a great increase in smallpox for 1920, usually mild but not always—an occasional death and frequently the loss of an eye or severe pitting, marring an otherwise clear skin. Nine and two tenths percent of chickenpox in the last six years was in persons fifteen and over. This we think is too large a percentage. Overton and Denno say in regard to chicken pox: "Some say that it never occurs in adults but it does occur now and then."



It has been hard for doctors to get away from the old classic description in the books and the old severe type of smallpox they have seen. As the death rate is low and as a "rose by any other name would smell as sweet", and as smallpox scares the patient and family, he takes a chance and calls it "Buffalo gnat bites", "Impetigo Contagiosa", "Eruption following flu", "Chickenpox" etc.

Overton and Denno give the following six points by which chickenpox may be recognized:

1. The duration of the signs preceding the eruption is hours, while in smallpox it is days.
2. The sickness and weakness accompanying the onset are slight, while in smallpox they are severe and painful.
3. There is a rapid development of the individual spots of the eruption, followed by dry-



ing and scabbing in less than a week, while in smallpox the development is slow.

4. A typical spot of the rash is a vesicle, which is superficial and soft; while in smallpox it is deep and hard, and develops into a pustule.

5. The spots of eruption come in crops, and all stages, from spots of redness to dried vesicles, may be seen at once; while in smallpox the individual spots of the eruption are uniform in the time and stage of their development.

6. The distribution of the eruption is the most valuable diagnostic sign. It is most marked on the trunk, and least on the face, hands, and feet; while in smallpox it is most marked on the face and extremities, and least on the trunk. It is sometimes stated that chickenpox never produces an eruption on the palms and soles, but eruptive spots do sometimes appear in these locations in chickenpox as well as in smallpox. Eruptive spots on the hard palate are common in chickenpox and infrequent in smallpox.

COLORADO STATE BOARD OF HEALTH.

Per J. W. M.

### THE BOSTON MEETING.

Information has been given out that if a sufficient number of doctors would signify their intention of attending the A. M. A. meeting in Boston (June 6-10) a through Pullman from Denver could be arranged for. Besides doing away with a change of cars at Chicago and the attending annoyance of double reservations, this would provide the pleasures of an all-doctor party, in which acquaintances could be ripened, shop talked freely, old grievances patched up (not to mention new ones developed) and the trip made generally livelier. The railroads would have to have a virtual assurance of about twenty to twenty-five passengers to make the plan practicable. The trip could be made over any one of several roads out of Denver. It is suggested that those who know they are going, and would like to travel in a reserved car, signify their desire to the state secretary, Dr. F. B. Stephenson, 460 Metropolitan Building, Denver, and state preference as to railroad and time of leaving. If a sufficient number is heard from, the matter will be taken up more in detail by individual correspondence.

A round trip rate of approximately one and a half fare, about \$120, will be in effect, tickets purchasable May 29 to June 2, return limit June 16.

### MEDICAL COLORADOANA CONTINUED.

In this issue will be found a continuation of the Medical Coloradoana whose compilation was undertaken in 1919 by Dr. C. D. Spivak. The previous publication dealt with the Journal of the American Medical Association; the present one covers the International Clinics, Medical Record and the Philadelphia Medical Journal. It is intended to continue the work with other journals, and publish the results from time to time, so that by the date of the annual meeting the larger American journals will have been pretty well canvassed.

## Original Articles

### STUDIES IN ARTIFICIAL PNEUMOTHORAX UPON THE RABBIT.\*

SALING SIMON, M.D., DENVER.

National Jewish Hospital for Consumptives, Denver, Colorado.

During the past ten years considerable literature dealing mainly with the clinical aspects of artificial pneumothorax has appeared in print, the most important of which was previously reviewed by the author.<sup>1</sup> To James Carson<sup>2</sup>, an English physician, belongs the credit of having first advocated, nearly one hundred years ago, the use of pneumothorax as a therapeutic measure in diseases of the lungs. Other pioneers in this field were Rameedge, Piorry, Cayley, Adams, Späth, Hérard, Potain and Forlanini. Dr. J. B. Murphy was the first to bring this subject to the attention of the American physicians, in 1898. It remained, however, for Brauer of Germany to place this procedure upon a scientific basis and to him and his pupils we are indebted for a better understanding of the subject. Accurate anatomical studies of the tuberculous lungs collapsed by means of artificial pneumothorax, however, are few and no definite conclusions have been arrived at as to its effect. In most cases there appears to be a tendency toward the formation of fibrous tissue and the healing of cavities in the collapsed lung. The alveoli of the lung are reduced to little round glandular like bodies and the epithelium of the alveoli assumes its original fetal cuboidal shape; there is also seen a narrowing or even entire obliteration of the bronchi and bronchioles<sup>3</sup>. Quiescence of the tuberculous process with subsequent healing as is indicated by encapsulation of the caseous foci has been noted<sup>4</sup>. Diffuse chronic induration or cirrhosis and lymph stasis have been observed in the artificially collapsed lung. One investigator<sup>5</sup> found less blood in the collapsed than in the uncollapsed lung and concludes, "that pneumothorax increases the tendency to healing in the diseased lung by means of the rest obtained; that the increased formation of connective tissue is brought about by the atelectasis and that there is a diminished absorption of tuberculosis toxins as a result of the consequent lymph stasis." He also found the right ventricle enlarged following artificial pneumothorax.<sup>6</sup> Another investigator employing the lung plethysmographic method could not confirm the decreased blood supply in the collapsed lung, all his experiments indicating rather an increased flow of blood to that lung.

Not until very recently has the effect of pneumothorax upon experimental pulmonary tuberculosis been studied. Based upon experiments

\*Read at the annual meeting of the Colorado State Medical Society, September 7, 8, 9, 1920.

<sup>1</sup>This paper is a brief of some recent investigations made by Drs. H. J. Corper, O. B. Rensch and myself in the Research Department of the National Jewish Hospital for Consumptives. The detailed reports will appear in the American Review of Tuberculosis.



with a very small number of rabbits that were infected intratracheally and intravenously with tubercle bacilli following a unilateral collapse, one investigator<sup>7</sup> concludes that the collapsed lung was more extensively involved than the non-collapsed lung.

If this conclusion, so different from the general conception of the effect of compression upon pulmonary tuberculosis, were true, the use of artificial pneumothorax in the treatment of pulmonary tuberculosis would certainly be contraindicated. It therefore seemed advisable to us to repeat more elaborately these experiments. Rabbits were used, since of all the usual laboratory animals the rabbit lends itself best for the production of a unilateral pneumo- or hydro-thorax; and by the intravenous injection of a uniform emulsion of virulent human tubercle bacilli an exclusive and uniform pulmonary tuberculosis was readily produced in this animal. The experiments to be reported were divided into two sets. In one first set right and left pneumothorax was produced, by the injection of from 75 to 100 cc. of nitrogen gas, depending upon the size of the animal, until a positive manometric reading up to +6 cm. was obtained. In the second set hydrothorax was produced by the injection of 75 to 85 cc. of sterile 7% acacia in physiologic saline solution.

In the pneumothorax set there were 8 control rabbits in which no collapse was produced; 16 rabbits all collapsed twenty-four hours before the intravenous injection of the tubercle bacilli, 8 on the right side and 8 on the left side; another group of 16 rabbits were given the intravenous injection of tubercle bacilli first and twenty-four hours afterwards 8 were collapsed on the right side and 8 on the left side. The hydrothorax set was identical to this except that there were only three-fourths as many animals in the set. All of the rabbits received by intravenous injection 0.5 milligram in 3 cc. of 0.9% sodium chloride solution of a virulent culture No. 1851 of human tubercle bacilli made into a uniform emulsion according to the method previously described by one of us and used in virulence tests.

The animals were killed at definite intervals (10, 19, 20 and 37 days in the cases of pneumothorax; 10, 20 and 30 days in the cases of hydrothorax) after infection, when the distribution and character of the lesions were carefully observed. On account of the large amount of uninteresting detail incurred in giving the complete findings and the limited space and time for this presentation the results of these acute experiments will be given to you in brief summary form only.<sup>†</sup>

As a result of this part of the study the conclusions have been drawn that artificial compression of one of the lungs of the rabbit by means of fluid (sterile 7% acacia saline solution) or nitrogen gas has no macroscopic influence upon the number or type of **tuberculous lesions** resulting from the intravenous injection

of a uniform suspension of virulent human tubercle bacilli, regardless of whether the compression is occasioned on the right or left side, or whether the fluid or gas is injected intrapleurally a day before or a day after the intravenous injection of the tubercle bacilli.

These results disagree with those obtained by Shaw, who maintains that compression favors the development of the tuberculosis in the compressed as compared with the other lung. Also there was noted no difference between the number or type of the tuberculous lesions in animals with one lung compressed as compared with normal animals not compressed, although the difference between the different animals of the same series receiving the same intravenous injection of tubercle bacilli was greater than the difference found between the two lungs of the same animal.

The fairly uniform distribution of the tuberculosis in the rabbit's lung regardless of whether the right or left lung had been compressed and whether collapse was occasioned before or after the intravenous injection of the tubercle bacilli, made it seem desirable, especially in view of Brun's observations, to obtain further corroboratory evidence that particles intravenously injected in fine suspension were uniformly distributed both in the collapsed and normal lung. Since also in the tuberculosis experiments twenty-four hours elapsed between the collapse and the infection, the evidence would be more convincing provided the fine suspension were injected within a short time after compression. Since tubercles do not make their appearance macroscopically in the lungs of rabbits for at least a number of days after intravenous injection, it seemed desirable to use some colored insoluble material which could be made up to a very fine suspension suitable for intravenous injection and would be immediately visible or could be made visible by contact with a suitable chemical reagent.

Carbon particles were considered but on account of the natural presence of anthracosis in animals and the difficulty of making suitable suspensions for intravenous injection this was not used. A heavy suspension of starch was also considered since it could be colored blue by prolonged immersion of the lungs in a weak iodine solution. This was used but found less suitable than either of the following two substances. The best results were obtained by the use of "Prussian blue", which gave a direct blue color to the lungs, and Scarlet R, which was found suitable not because it would give a direct color to the lungs but because it could be extracted and determined colorimetrically quantitatively using alcohol as a solvent. (The Prussian blue used was prepared from ferric chloride and potassium ferrocyanide). About 8 cubic centimeters of the suspension of this precipitate diluted 1:10 with saline was given intravenously. The suspension of Scarlet R was made by cautiously diluting a strong ether solution of the dye with 7% acacia saline solution and shaking vigorously when the Scarlet R would precipitate out into a fine suspension suitable for injection. A series of 9 rabbits were

<sup>†</sup>The complete protocols and tabulation of these results with acute pneumo- and hydrothorax will appear in the October American Review of Tuberculosis.



given 100 cubic centimeters of nitrogen into the right pleural cavity and within thirty minutes thereafter were given intravenous injections of suspensions of Prussia blue, starch and Scarlet R with results that may be summarized as follows:

Suspended particles of Prussian blue, Scarlet R and starch injected intravenously into rabbits with a right-sided pneumothorax produced a short time ( $\frac{1}{2}$  hour) prior to the intravenous injection, are uniformly distributed throughout both of the lungs; on account of the partial solubility of especially one of these substances, Prussian blue, there was found also to result a disappearance of this substance from both lungs equally and uniformly. These observations strongly indicate that such circulatory disturbances as may result from acute compression of the lung in the rabbit certainly cannot be very marked. They also explain and verify the uniform distribution of the tuberculosis in the lungs of rabbits following the intravenous injection in normal and pneumothorax animals.

The studies thus far reported dealing with results obtained after pneumothorax had existed for only a short time did not seem complete without extending these observations to the changes produced after artificial pneumothorax had been maintained for as long a period of time as is consistent in this type of animal experimentation. Dr. E. R. Baldwin of Saranac Lake in commenting on the earlier part of this work also suggested that the following experiments should materially increase the value of these investigations.

The analytical experiments with Scarlet R were carried out two and four weeks after the inception of pneumothorax which was maintained throughout this entire period by renewals of the gas every second or third day starting with small amounts of about 50 to 100 cubic centimeters of air, in order to obtain a gradual and final complete compression.

For the sake of comparison and as control to this experiment normal rabbits were given intravenous injections of Scarlet R and the lungs were analyzed in an identical manner to the pneumothorax rabbit's lung.

To summarize these analytical results with Scarlet R briefly, it was found that a fine suspension of Scarlet R in gum acacia saline injected intravenously into normal rabbits is distributed to the two lungs, but the amounts found in the right or left lung by accurate colorimetric analysis are subject to considerable variation in the individual rabbits so that only by averaging the findings in a series of animals is the approximate distribution obtainable. Such average reveals the entire right lung to possess more of the Scarlet R suspension than the left in proportion of 81 to 71, while on the basis of per gram weight of lung tissue the proportion 11 right to 14 left is obtained.

Compression of the right lung by means of air, artificial pneumothorax, maintained for a period of two weeks followed by the intravenous injection of a suspension of Scarlet R does not appreciably alter this average relation resulting from the examination of a series of rabbits

although a slight difference is appreciated especially in comparing the total average lung weight—the proportion being right (compressed) 86 to left 102—while the average Scarlet R per gram lung is unaltered—right (compressed) 13 to left 17.

Artificial pneumothorax maintained for four weeks, however, reveals an appreciable average change, the Scarlet R present in the total average lung weight being less in the compressed than in the non-compressed lung—the proportion being right (compressed) 101 to left 166—while the average Scarlet R present on the basis of per gram lung is also less in the right as compared to the findings in the normal animal—the proportion being right (compressed) 14 to left 29.

These differences, following prolonged pneumothorax, between the compressed and non-compressed lungs, though appreciable by a delicate analytical method as that applied in the scarlet R experiments, are not marked enough to be discernible by the gross macroscopic findings with a pigment like Prussian blue injected intravenously, which reveals a fairly uniform distribution even after four weeks duration of the pneumothorax in rabbits, and likewise a fairly uniform disappearance of this partially soluble blue pigment.

It seems from these later experiments, especially with Scarlet R, that prolonged compression does have an influence, though slight, upon the pulmonary circulation which we are inclined to view as a probable effect of the "atrophy of disuse"—in other words we have placed the compressed lung into an air cast which to all intents and purposes has the same effect as that which we see after a plaster cast has been maintained on a limb for an extended period of time.

Before concluding there still remains the question as to whether prolonged compression or artificial pneumothorax maintained during the entire period of infection in the rabbit and extended over an interval as long as is consistent for experimentation with this animal, has any effect upon the pulmonary tuberculosis resulting from the intravenous injection of virulent human tubercle bacilli which produce an exclusive pulmonary tuberculous involvement.

A large series of rabbits in which a good collapse of the right lung was initiated shortly after the intravenous injection of the tubercle bacilli and maintained for a period of a month by means of the intrapleural injection of air every second or third day throughout the experimental period, revealed no appreciable effect of this procedure upon the size or number of macroscopic tubercles found in the lungs of the treated animals as compared to the untreated, or in the compressed right lung as compared to the non-collapsed left lung.

Metropolitan Building.

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<sup>8</sup>Corper, H. J.: The Virulence of the Tubercle Bacilli Isolated From the Sputum. Jour. Infect. Dis., 1918, XXIII, 500.

#### DISCUSSION.

**J. B. Crouch, Woodmen:** This paper has gone over the subject so thoroughly that Dr. Simon and his associates have left very little to say. You know that in the course of pneumothorax treatment a large percentage of cases naturally will develop an effusion upon the compressed side. The cause advanced for this effusion has been that the circulation, especially the lymph circulation upon the compressed side, was interfered with. We at the sanatorium have never felt that this was exactly the case. The fluids which develop upon the compressed side are always tuberculous fluids, and it has seemed to us that if these were due to a circulatory change you should have a sterile fluid. The fluids, if inoculated into animals, will always bring about tuberculosis in these animals so that we feel that the fluids on the compressed side are not due to circulatory changes, but rather to infection of the pleural cavity with tubercle bacilli.

**S. W. Schaefer, Colorado Springs:** I simply want to say how valuable this work of Dr. Simon and his associates is in helping us to get at some of the reasons why pneumothorax gives such good results, and I hope it will stimulate others to carry it on.

**Dr. Simon, Closing:** A clinician has very little time to dip into experiments of this kind, and I want to state that I did not do the work. I simply suggested part of the work, which was done in the research department of the National Jewish Hospital for Consumptives at Denver, where there is a corps of research men directed by Dr. H. J. Corper. I want to pass around these specimens. In the first series here we have the lungs of rabbits that have received injections of Prussian blue. You will notice in the lungs of the rabbit killed immediately after injection that the Prussian blue is evenly distributed throughout both lungs, the compressed and the non-compressed. In the lungs of the animals killed one, three, five and ten minutes after receiving the injection of the Prussian blue, the coloring matter is equally and evenly distributed through compressed and non-compressed lungs. In the latter the coloring matter has almost disappeared, with the exception of a few discrete small spots, but practically alike in both lungs.

#### IMPRESSIONS GAINED FROM THE USE OF RADIUM DURING THE PAST YEAR.

**C. B. INGRAHAM, M.D., DENVER.**

I fully realize that one year's experience with radium is not sufficient to judge results, but even in this length of time and with a small number of cases, much is learned and impressions are gained. A recital of our experiences and ideas may, I hope, bring forth discussion at this meeting.

Dr. Foster Cary and I began the use of radium last September. Knowing little of the technic of radiation, we procured the services of Dr. Elizabeth Moyer, who for two years had been giving treatments at Dr. Kelly's Sanatorium in Baltimore.

Our success with superficial epitheliomata has been almost universally good. Some have disappeared promptly with one treatment; others have needed three or more. An epithelioma

apparently cured may return. The squamous cell variety is much more resistant than the basal cell type. Radium treatment is preferable to either cauterization or operation in this form of malignancy. When located in an area which would necessitate the removal of part of an eyelid or other important tissue, it is the best form of treatment. Secondary gland involvement should, I believe, be surgically treated. X-ray is next best although radium treatment of the glands may destroy metastasis.

In the treatment of superficial epitheliomata our technic consisted in using a 10 mg. radium plaque, with a piece of rubber dam between plaque and skin, for three to five hours; in an infiltrating epithelioma a 50 mg. radium tube, in 1 mm. silver and rubber, applied for five to ten hours, depending on the size of the epithelioma.

Three cases of cancer of the face have been most disappointing. Two involved the antrum with invasion into the nose. In one we abandoned treatment, because we were doing no good; the other has gone from bad to worse. A rather extensive operation had been done—removal of the malar bone with a portion of the orbital plate and lachrymal bone. There was a prompt recurrence, for which hard radiation has done nothing. There exists a large crater, and the man is rapidly losing ground. The third case involved the cheek inside the mouth. Three years ago, when the growth was small, it was removed by Dr. Ochsner, but immediately recurred. X-rays and plasters were later used. The space between the reflection of the mucous membrane from the gum above the jaw below, and from the corner of the mouth backward for about four centimeters, was the seat of a foul ulcer. Treatment for over six months caused improvement, but in the midst of a severe reaction the man became discouraged and entered a cancer institution.

We have treated three cases of cancer of the tongue. Two have died. The third is most gratifying. Two years ago a growth appeared in a man seventy-seven years of age. In July, 1919, at the Mayo clinic, it was pronounced cancer. He was later operated upon in St. Paul, when the left side of the tongue and glands of the neck were removed. In January, there was a recurrence on the right side of the base of the tongue. Dr. Markley treated this with radium, while Drs. Levy and Eichberg removed some glands from the right side of the neck. He was referred to us in March. There was a hard nodular induration on the right side of the tongue posteriorly extending down to the junction of the tongue and pharynx, with some bleeding on examination. There were two glands palpable, one under the ramus of the jaw, a small one lower in the anterior triangle. There is now no demonstrable lesion in the mouth. The glands are small and fibrous. Previous surgery has, however, discouraged anything further in the way of removal.\* The area on tongue was treated with 100 mgs. radium, dis-

\*Read at the Annual Meeting of the Colorado State Medical Society, September 7, 8, 9, 1920.

\*Since this paper was read there has been a slight recurrence in the floor of the mouth near the right gum margin.



tributed so as to cover the whole area. This was applied for three hours and application made every four to five weeks; filtered with  $\frac{1}{2}$  mm. silver and rubber.

Two cases of cancer of the esophagus have died. Both were extensive growths beyond hope of anything other than palliative treatment. In one, autopsy showed involvement of the lungs and mediastinum. Radium on the end of an esophageal bougie was directed under the fluoroscope. In an early growth, I believe life would be considerably prolonged. We have nothing better to offer for malignancy involving this area.

A carcinoma of the bladder treated through a suprapubic opening was made to temporarily disappear. There was later a recurrence in both the bladder and abdominal scar. However, with the result first obtained it was a mistake not to continue treatment. A 50 mg. radium tube, filtered with  $\frac{1}{2}$  mm. silver and covered with rubber, was placed in the center of the growth for fourteen hours. Another treatment was given four weeks later, when the radium tube was screwed to the end of a sound and applied through the urethra for six hours.

Excellent response accompanied radium treatment of a cancer of the vulva. There was a hard, nodular bleeding area in the vestibule just behind the urinary meatus, with a peri-urethral thickening felt through the vagina as far as the base of the trigone. In treating this area we obtained a painful burn of the labia minora, which healed slowly. The patient (seventy-six years of age) died of pneumonia seven months later. There was, however, at this time no local evidence of any malignancy. Radium treatment consisted in giving 320 mgs. for six hours; 200 mgs., filtered with  $1\frac{1}{2}$  mm. brass, 3 mm. rubber, applied to the inside of the growth along the anterior vaginal wall; 120 mgs., same filtration, applied externally over meatus. Normal tissue of the posterior vaginal wall and structures surrounding the urethral meatus were protected with 2 mm. lead. This treatment was given on November 27th. A second treatment was given January 16th, using 160 mgs. for seven hours. Examination made March 21st showed that the growth had entirely disappeared.

A case, previously operated upon for cancer of the rectum with resection, was referred from the Mayo clinic to Dr. Childs, who treated with x-rays, while we used radium. The case was hopeless; the whole pelvis became filled. I believe we did little, if anything, to help this man.

We have had but two cases of sarcoma for which we have used radium. One, originating in the ethmoid region, was operated upon by Dr. T. E. Carmody. Almost continuous bleeding into the mouth was quite effectually checked and when, later, metastases occurred, radiation over these areas stopped the pain of which the patient complained. The boy lived about three months after the treatment was begun. There was at no time hope of checking malignancy. This case was treated with radium, a total of 2,790 mg. hours, given over three areas on the left side of the neck and 500 mg. hours to the

nasopharynx; applying radium directly to growth. After a month the glands had disappeared, bleeding from nasopharynx greatly diminished, to later stop entirely.

Another patient with a large sarcoma arising from the right frontal bone, involving the nose, with the eye brought forward in this mass, has been treated with the result that hemorrhages into the nose have stopped, the "agonizing" pain has disappeared and there has been a considerable reduction in the size of the tumor. The relief from pain made this treatment worth while.

Radium work is depressing; it attracts hopeless cases who come for this treatment as a last resort. They are not like surgical conditions which may be discarded according to prognosis. Even palliative relief means much to patients in such horrible straits.

We have had four cases of vernal conjunctivitis—three cases from Dr. Melville Black, one from Dr. J. M. Shields. There has been relief in the symptoms and in some an improvement in the appearance of the conjunctivae. I would be pleased if Dr. Black or Dr. Shields would state what they think has been accomplished.

These cases were treated with 50 mgs. of radium, in glass capsule, applied for ten minutes to everted lid. Treatments repeated every three or four weeks. Usually after second treatment the subjective symptoms disappeared. The lesion improved grossly; permanently or not, remains to be seen.

Gynecology offers a large field in which radium is particularly indicated. In cancer of the cervix, as with epitheliomata of the skin, it is satisfactory, because the radium may be placed in direct contact with the growth.

In dealing with the inoperable case there is no doubt that radium offers more than any other form of treatment. A considerable number of cures have been reported. Even in the worst cases of bleeding, discharge and pain are checked; the local condition improves and there is a temporary lease on life. Many make the statement that the early or operable case is preferably treated with radium.

We have treated, within the year, eight cases of cancer of the cervix, a number sufficient only for an impression, and with insufficient time to judge of results, so before referring to them I will quote the remarks of others. Janeway (*Journal Surgery Gynecology and Obstetrics*, September, 1919) compares results with radium to the figures of Jacobson, who collected 5027 cases operated upon by extensive abdominal removal; 34.21 percent were operable and of 1997 cases there was an operative mortality of 18.23 percent; of 1090 cases there were 386 or 35.41 percent traced cures (with few exceptions of five years standing). The cures represent 19.32 percent of the cases operated upon or 11.72 percent of cases applying for treatment.

The statistics from radium are considerably better, although they have for the most part not been observed over a long period of years. Kelly and Burnam, in this country, have done the most extensive work. Of 213 patients, 14



were operable; four of these were treated with radium alone and all are well; two for a period of two years and two for one year. Ten were first operated upon and afterwards treated with radium and all were well six months to three years after treatment—very favorable when we consider that after operation there is a recurrence in from 60 to 75 percent in the first year. Fifty-three or 26 percent of the inoperable cases have been cured, some for four years.

Between eight thousand and nine thousand women in the United States die from cancer of the uterus each year. Among our most able surgeons the primary mortality in the Wertheim operation is from 10 to 20 percent. The operation for such a common condition should not be so formidable, only practical for a few skilled specialists. To have a permanent place, it should carry a low mortality with surgeons of each community.

For the most part the technic of radium treatment is easily learned, it carries with it no primary mortality, is probably as efficacious as operation even in the operable cases, and it surely does more than anything else for the inoperable. There is not the suffering consequent on an operation and the patient can follow the usual routine. It is expensive and it would seem that through the Medical Society or state this form of treatment should be available to the cancer patient.

Our cases can be quickly summarized; two have but recently had their first treatment, one is favorable. It is for the most part local in the cervix with little extension in the left broad ligament; the other is far advanced with extension laterally and with bladder involvement.

Another case with extensive involvement in the broad ligament and vault with a large cervical mass, was treated once, with marked local improvement. She was then seen by a physician who advised operation, ten days after which she died. This was about six weeks after our treatment.

One case we have been unable to trace; she had but the one treatment for an extensive cancer involving the cervix, left fornix and broad ligament; seen three weeks later there was a large slough present in the cervix with much greater mobility of the uterus.

The fifth case was a cancer involving the cervix, none of the vault and slight induration laterally. I considered the case operable and did a Wertheim operation, encountering cancerous tissue along the left ureter with two swollen glands (not microscopically examined). As clean a dissection as possible was made, with, however, the feeling that there would be a recurrence. She was treated prophylactically with radium in the vagina and externally over the ovarian region. It is now seven months since the operation with no evidence of return.†

The technique in the treatment of cervical carcinoma for the larger number of cases has been 50 mg. of radium, filtered with  $\frac{1}{2}$  mm. silver and 1 mm. brass, applied intracervically to

give a total dosage of 3000 to 3500 mg. hours; anterior and posterior vaginal walls protected with lead plates; treatment repeated at the end of six weeks if reaction was not too extensive at the time, if so, a wait of eight weeks before repeating. When there was extension into the vault and broad ligaments, 25 mg. tubes, filtered with  $\frac{1}{2}$  mm. silver and 1 mm. brass, applied to the vault for twenty-four to forty-eight hours; two needles thrust into parametrium for same length of time; each needle contained  $12\frac{1}{2}$  mgs. of radium element.

The three remaining cases are still under treatment (from four to six months). All are advanced cases. With two the general condition is markedly improved, bleeding and discharge has stopped, and the cervical growth has assumed an almost normal appearance. One, in an extremely weak condition, picked up and was able to accompany her husband on a fishing trip. The patient not improved has recently had, following our third treatment, a slough into a cervical vessel which caused a severe hemorrhage; before this occurred she had been greatly benefited.

Another interesting case was referred by Dr. Bagot. He had done a hysterectomy for carcinoma of the cervix twenty-five years before. For four months there had been present a hard indurated bleeding area in the vault of the vagina, undoubtedly cancer, though no sections were made. We made a cast of the vagina with dental wax, placing radium tubes on this where they would come in contact with the growth. At the end of three months there is no demonstrable lesion.

We have treated a few cases of uterine fibroids, with good results excepting in one case. In this a sub-mucous tumor projected in such a way that radium could not be forced by it; and so, for continued hemorrhages, I did a hysterectomy.

For radium application to fibroids the principal indication is bleeding. For the most part the treatment should be limited to women within or near the menopausal cycle, for radium is quite as capable of bringing about a premature menopause as removal of the ovaries. If young women are to be treated, a minimum application should be made increasing the duration slowly, if the first attempt fails to check the excessive flow.

The cases should be accurately selected, the tumor not too large; Clark (Jour. A. M. A., Sept. 27, 1919) rarely treats a fibroid uterus larger than a three months' pregnancy. Kelly and others would treat somewhat larger tumors. Pedunculated or large nodular tumors should not be treated, as necrosis with absorption occurs. A coincident inflammatory disease is a contraindication, for contrary to the opinion of some, radium is not beneficial in the treatment of pyosalpinx; and on the other hand may light up a quiescent inflammation. Fibromata with pain call for operation, for pain even when not associated with inflammation is seldom relieved. Accompanying ovarian tumors also call for operation as does degeneration of the fibromata

†Now, a little over a year, there is no evidence of recurrence.



or malignancy, unless so extensive as to be inoperable. The chief indication for the use of radium then is hemorrhage.

In a uterus with not too large fibroids and bleeding a safer or more certain remedy does not exist. One may see that a large field is left in surgery for the treatment of fibromata and here one may be radical or conservative as the pathology indicates.

In using radium there is a gradual decrease in size of the tumor—it may not completely disappear—and following this there is a sticky yellowish leucorrhea, lasting for six weeks or longer. There may also be some pain at first.

A 50 mg. radium capsule is generally used, filtered with  $\frac{1}{2}$  mm. silver, 1 mm. brass covered with rubber, applied in the uterus for twenty to forty hours.

Uterine bleeding due to conditions other than malignancy and to fibroids, responds successfully to radium. I refer to the so-called idiopathic bleeding, due perhaps to a variety of conditions, such as hyper-secretion of the ovary, deranged harmonic equilibrium, cystic degeneration of the ovary or polypoid endometritis. Uterine bleeding calls for a preliminary curettage to preclude malignancy. The condition is frequently met with in women toward the end of menstrual life, when examination reveals a normal pelvis. Various drugs or gland extracts are tried. Pituitary extract may be efficacious, but too often everything fails and one is obliged to resort to the radical procedure of hysterectomy. One or two applications of 50 mgs. of radium for twelve hours will cause complete cessation of menstruation, and such cases do not belong in the surgical domain.

The treatment of profuse and prolonged bleeding in young girls is more of a problem. The ovarian function should be preserved. Small doses of radium for short periods may be used and repeated; an overdose can, however, cause complete cessation for two years or longer. Pregnancy has followed cessation of menstruation from radium.

A dosage of 300 to 400 mg. hrs. of radium may be all that is necessary to check the bleeding.

There has been much conjecture as to what takes place when radium is applied within the uterus; the consensus of opinion is that the ovaries are affected; the follicles most advanced in development being destroyed. When menstruation returns it is supposed that the young follicles less affected have matured. Elsewhere in biology it is supposed that the immature elements are the ones most affected, and to show the fallacy of this conclusion Maury (*Journal A.M.A.*, July 19th, 1920) has exposed the ovaries of rabbits to radium rays through the abdominal wall. Sections showed little change and radiated rabbits have become pregnant. He believes, as do others, that the endometrium is chiefly affected with intra-uterine application, first, second or third degree burns result; the first two are capable of healing, while the third produces permanent amenorrhea.

We have treated no young girls for menor-

rhagia, but have had complete success with older women.

In conclusion I will repeat that in many non-malignant conditions radium has a distinct place. When dealing with cancer we are confronted with a disease for which we have no absolute cure.

When in direct contact with the growth radium gives its best results.

Epitheliomata may be definitely cured.

In cancer of the cervix, unless definitely operable, radium is preferable to other treatment.

Combined with operation radium is of undoubted benefit and may render an inoperable cancer operable. Radium is not a competitor of surgery but should be used as an adjunct. We know definitely that radium lessens symptoms, decreases pain and prolongs life; results which are not to be depreciated in this dread disease, results quite sufficient to make greater study of radium imperative. With its more extended use and improved methods of application, we have strong reasons to believe that eventually many forms of malignancy may be cured.

#### DISCUSSION.

**E. F. Dean, Denver:**—Dr. Ingraham's paper is very interesting. He says it well when he says that the handling or treatment of radium cases is of a depressing nature. We see nothing but cases that are incurable and in many instances inoperable. The treatment with radium at the present time fluctuates. I do not believe there are any two individuals who are using radium who use the same dose or filter. At the present time each person who uses radium makes it his individual treatment. Being associated with an institution in Denver, the Medical and Surgical Group, it is my good fortune to have access to an emanation plant. This, I believe, will be the ultimate method of handling radium. It is nothing more nor less than the throwing off of gas from the radium salts and it gives us a very flexible dose. The gas can be put into any kind of container and the dose can be regulated as we see fit; also the gas can be compressed into a very small piece of apparatus, giving a large dose and a small applicator. Our experience with radium to date indicates that it is going to occupy a place in medicine and surgery. It seems to have the position at the present time of being used only in inoperable and incurable cases.

In our group the handling of radium has been placed in charge of one individual. Attempts are being made to find the cases that respond best to radium treatment and to eliminate all other cases. We have up to the present time handled a large variety of cases, including cataracts of the eye, skin diseases and gynecological conditions. Our best results at the present time seem to be confined to gynecological cases which are nonoperative. We had referred to us the first of last April a case of this kind, inoperable, incurable carcinoma of the cervix. After receiving two treatments the hemorrhage stopped entirely and the discharge cleared up. The patient has gained fifty-seven and one-half pounds in weight up to the present time. The length of time for each treatment in the hospital was not over twenty-four hours. This case was checked by microscopic examination. What the future will be for this case, I cannot say. In this type of case we get wonderful results. This woman continues to gain and says she feels in perfect health. A fibroid case, inoperable because of the patient's nephritic condition, was treated with radium last May. The fibroid at the time of treatment was the size of a three months' pregnancy. Examination a week ago showed the uterus to be of normal size. One treatment only was given. This woman continues to menstruate normally and is apparently well. The examination was checked by Dr. Buchtel, my associate, whose conclusion was the same as mine. We have a number of other fibroid cases, which are larger in size and of the bleeding type. These have been decreased about



50 percent in size but have not been treated sufficiently long to enable us to give an opinion as to what results we may expect. A very large fibroid which was treated three months ago has decreased one-half. We have obtained good results in the treatment of incipient cataracts of the eye. The treatment of these cases, of course, has to extend over a considerable time. In one cataract case, after being treated for a period extending over two to three months, the patient is now able to read small print for the first time.

We are determined to find the proper place for radium in surgery and use it only for the type of cases that respond. While the treatment of radium cases is very depressing, it is, on the other hand, very fascinating.

**Melville Black, Denver:** Dr. Ingraham has asked me to say a few words in regard to the three cases we have under observation for vernal conjunctivitis. I have no doubt a great many of our members present are unfamiliar with the condition known as vernal conjunctivitis. It is essentially a disease of childhood. All of our cases are children under the age of 9 years. It appears in two forms—one where the inside of the lids is attacked and the other where the eyeball is attacked—the palpebral and the bulbar type. Our cases are of the palpebral type, and the lining of the inside of the lid resembles trachoma in its appearance, but is lacking in vascularity. It has an exsanguinated, bluish appearance as though brushed over with skimmed milk and a good deal of tenacious frothy secretion is present. The symptoms are very distressing. These children experience a great deal of itching, smarting and burning particularly itching, and the disease is accompanied by a sticky discharge. This condition goes on, getting worse each year. It is at first a disease essentially of the summer months—that is, so far as the symptoms are concerned—but goes on until the symptoms are present the entire year round, and become almost as bad in the winter as they are in the summer. The use of radium in these cases is practically the only remedy we have, that we know of, that is at all specific. The x-ray has been of some value in these cases, but not to the same extent as radium. We used a 50-milligram package of radium, screening off the alpha rays, and applied this directly to the everted lids, the period of exposure running from twenty minutes down to ten minutes. The reaction does not occur until about the tenth day, and will last usually about ten days, so that it is not well to apply the radium too often, and it is unquestionably of advantage to apply it in large enough doses to produce some reaction. The tendency, I think, on the part of a good many men has been to use too small doses of radium and to apply it every few days. Experience has taught us that that is not the best way to do it, but to apply a large dose of radium and then wait until the reaction has appeared and disappeared before reapplying it; so that we have applied our radium in these cases at intervals of from three weeks to four weeks. Two of these cases had something like six or seven different applications. The result, in so far as the symptoms are concerned, has been very pronounced. These children are all free from symptoms today, but when the lids are everted there is an appearance of pathology that is very marked at the present time, and what the ultimate clearing up is going to be remains to be seen. The treatment will probably have to extend over several summers before these cases can be pronounced cured.

**J. M. Shields, Denver:** Dr. Ingraham and Dr. Moyer have recently treated a case of typical vernal conjunctivitis of the palpebral type which came to me about the middle of the summer. He has just returned to his home in Arkansas after having three radium treatments at intervals of about three weeks. We used a fifty-milligram tube. This patient was having a tremendous amount of photophobia when we gave him his first treatment, but was entirely relieved after the last treatment. The broad, flat excrescences, very abundant at first, had almost disappeared when I last saw him.

**Joseph C. Beck, Chicago:** I think it would not be well for me to take the time now in discussing this paper, because it probably will be a repetition of what I am going to say this afternoon, but I wish to say that Dr. Ingraham's paper, although I missed the first part of it, gives me the impression that he has taken the right course by the use of radium as he has suggested. I believe something else will come on that will help in the treatment of malignant diseases; and I will have a little more to say about that this afternoon.

## A STUDY OF INTHRATHORACIC MOVEMENTS.\*

W. W. WASSON, M. D., DENVER.

Rather recently the roentgen ray has made a definite advance into the various fields of general medicine. The late influenza epidemic has brought forth an unusual number of early pulmonary infections and the roentgen ray has been used ex-



Radiograph of arm, illustrating the blurring caused by the slightest motion during taking of the radiograph.

tensively as an aid in the diagnosis of these cases. It would then seem that the general medical profession might be interested in some of the problems which enter into the making of a diagnostic chest plate. Three years ago, feeling dissatisfied with the accuracy of results in chest roentgenography, I began a series of experiments covering the various phases of this work from the clinical and physical, pathological, laboratory and roentgen ray standpoints. I wish to present for your consideration at this time the study of intrathoracic movements.

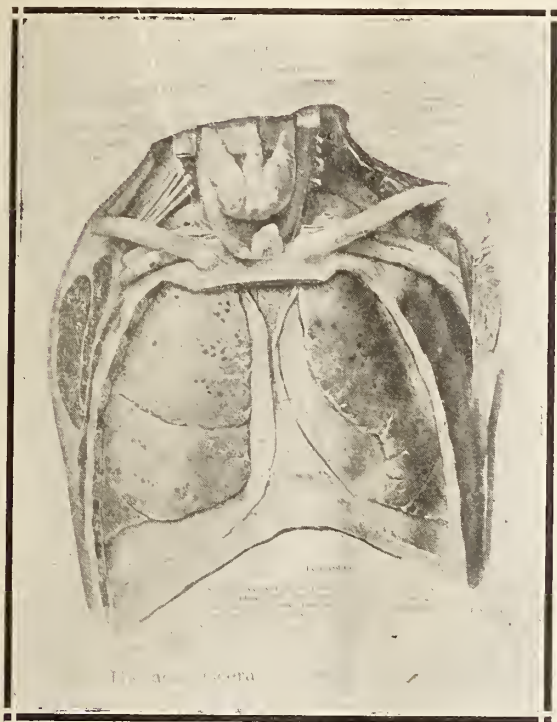
The roentgen photograph is a shadow picture and depends upon the ray's ability to penetrate solid substance. For a good plate there must be no movement, as in ordinary photography, and there must be a difference in densities of various parts of the body x-rayed. In the chest, Nature has provided us with ideal conditions of densities with air surrounding solid and liquid substance, but there are likewise many organs involved with involuntary motion over which we have no direct control.

Briefly, the act of inspiration consists of the raising of the chest walls, the descending of the

\*Read at the annual meeting of the Colorado State Medical Society, September 7, 8, 9, 1920.



diaphragm and the inrush of air into the area of negative pressure occasioned by the outside atmospheric pressure. If inspiration is not com-



Reproduction from Spalteholz anatomy, illustrating the close relation of the thoracic viscera.

plete, then the air does not surround the solid substance, that is, the bronchi and lymphoid nodes, and we have not the proper contrast. Conditions resembling tuberculosis are then produced and may be hard to differentiate. Especially is this true in children. Plates taken in expiration are unsatisfactory.

The action of the chest wall in respiration is voluntary, usually easily controlled and has been well studied by clinicians.

The diaphragm moves by voluntary action, but in children and some adults we do not have it under control and it may be a source of great movement on the roentgen ray picture. In babies its action must be completely overcome to obtain a diagnostic plate. In men the diaphragm is seen under the fluoroscope to descend as a whole, but it may also descend partly by flattening the outer segments. The latter is often seen in women. Abdominal lesions will restrict its action and irregularities of the liver will produce irregularities of the diaphragm. True adhesions and nerve lesions alter its movements. It would also seem that with the descent of the diaphragm below a lung stiffened by congestion, we could have a cupping of the diaphragm due to a high negative pressure at this point; the air not rushing into the lung to aid its movements. This may simulate adhesions and be confusing where pneumothorax is contemplated. Certainly, this is one factor in the lagging of a diaphragm with a large involvement of one lung.

The heart action has been well studied by clinicians and roentgenologically by men like

Crane and Bardeen. Its action is involuntary and lies in close apposition to the lung, in which we are especially interested. Any motion of the heart would then be transmitted to these surrounding structures. It has sixty-five to seventy-five cycles per minute consisting of a systole and diastole. Either systole or diastole would then consume less than one-half second each and under the fluoroscope there is seen to be considerable motion occasioned by the contraction of systole and the dilatation of diastole. This excursion of the heart, consuming less than one second, is quite rapid. The great vessels, especially the aorta, have considerable motion, due to pulsation which is opposite in time to the heart, as it is systole that produces pulsation. The breadth of this excursion of the aorta and heart varies with the individual, but is usually several millimeters. In the same individual the heart changes its position in the upright and prone positions and varies its location in different individuals according to their height. It also may be shifted from one side of the chest to the other by adhesions or unequal intrathoracic pressures.

Clinically, we know that the esophagus has certain movements and under the fluoroscope these are seen very clearly. Lying in the mediastinum, surrounded by other organs of almost equal density, we must use a barium meal to bring the esophagus into relief. This meal passes down partly by gravity and partly by peristalsis. The latter may at times be very rapid and quite marked. The esophagus in its lower third also lies close to the posterior surface of the heart and pulsates markedly with the heart pulsation. This is of considerable importance as many of the esophageal lesions lie in this portion. The esophagus is also shifted with the rest of the mediastinum in various chest lesions.

Our next consideration is that of the pulmonary structures. The lung is normally free within the chest wall; the visceral pleura gliding freely upon the parietal pleura and the pulmonum suspended by the hilus structures. Under the fluoroscope we observe on inspiration with the general expansion of the whole lung the lower bronchi move downward while the upper ones move upward. Also, as described before, the heart has, during

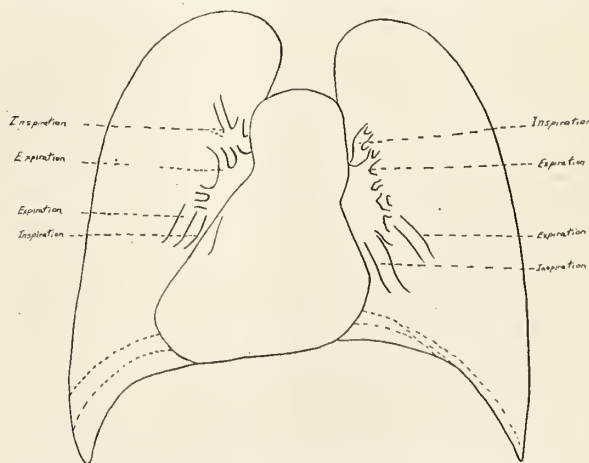
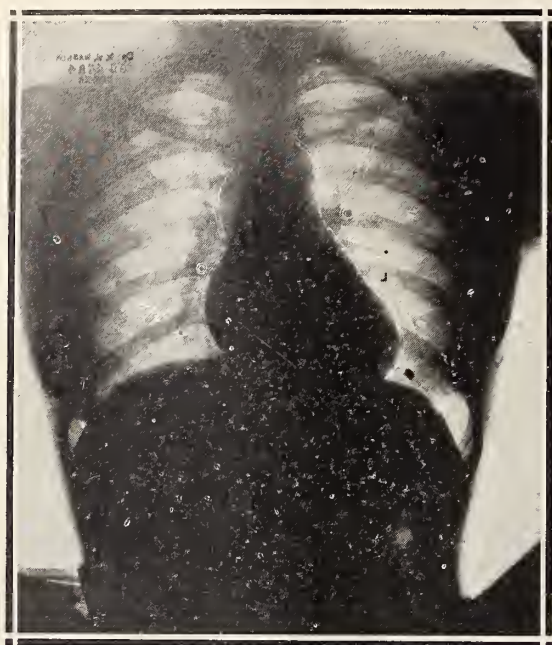


Diagram made from fluoroscopic examination. Observe changes in position of the bronchi coming off from the hilus during inspiration and expiration. Two types of diaphragmatic contraction are illustrated.



its cycle, an excursion of several millimeters and is opposite in time to that of the aorta. This motion is seen to be transmitted to the left lung and



**This radiograph was made by first studying the heart cycle and getting the exact interval between complete systole and diastole. The exposure was then made at systole and diastole on the same film, each exposure being less than one-tenth of a second. Tracings were then made upon the film of the heart in its two positions and of the bronchi.**

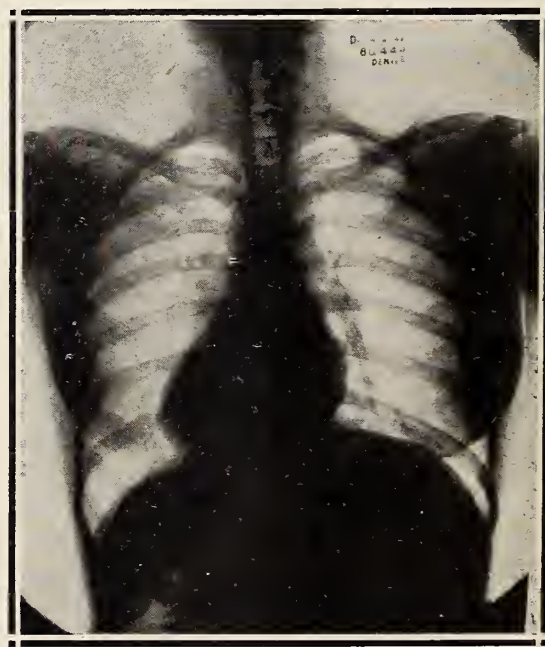
produces a rocking motion of this structure about the left hilus as a pivot. There is also transmitted movement of the hilus, but not of the rocking type. I have endeavored to measure the path of the bronchial motion directly on the fluoroscopic screen and the roentgen ray plate and have found that it may be as much as twice the width of the bronchus, but varies not only in individuals but according to the violence of the heart action. It is also somewhat lessened by full inspiration. This movement is transmitted to the small bronchioli and parenchyma. It must also be remembered, that the parenchyma is of a jelly-like consistency and readily transmits any vibration. On the right side of the chest, we have a similar condition to the left, but much less marked as the excursion of the right side of the heart is much less than that of the left. The upper part of the left lung, however, receives considerable impulse from the aorta and great vessels. The collapse of one lung or its shifting from adhesions or emphysema, I need only to mention as they are well understood.

A careful search of the literature, both foreign and of this country, reveals practically nothing on intrathoracic movements except in rather gross pathology. Dr. Knox of London advises the taking of chest pictures by instantaneous exposures and states that one taken in more than one-tenth second has no diagnostic value except in gross lesions. Dr. Dunham of Cincinnati has advised that they be taken in less than two seconds. There is, however, an abundance of literature, both pathological and anatomical, describing the minute

structures of the lung and the very minute changes that take place in early chest lesions. Doctors Dunham and Miller have done a great deal along this line. Jordan has called our attention to the hilus changes, especially in children. If the roentgen ray is to be of any value to the internist, it must portray these early changes and the usual technique for this has and still is, a time exposure of two to four seconds.

When we consider that no movement is essential to the correct portrayal of an object on a roentgenogram, it would then seem that if our observations are correct, it would be very necessary to overcome this movement. Dr. Orndoff of Chicago has shown that motion of 1-50th of an inch will partially blur the image and some of the bronchi move twice this width. I shall not here enter into the electrical problem necessary to correctly portray the intrathoracic structures, but it is now practical to take chest pictures as a routine in less than one-tenth second. Neither will time allow me to give a detailed description of the clinical significance or the field for further investigation. In my experience it has enabled me to more closely and accurately study the thoracic structures; the heart and diaphragm are sharply outlined; the individual components of the hili differentiated and studied. The walls of the bronchi can be plainly seen and the beading of early tuberculosis and the pocketing of bronchiectasis more accurately studied. In the parenchyma the early septal changes or the beginning air cell congestion of early lesions are visualized.

As in the physical examination, it would then seem necessary for the medical profession to carefully consider the problems of roentgen ray diagnosis of chest lesions before depending upon them. The clinical history is still the best guide, but a positive clinical history and a negative physical examination do not necessarily mean a negative



**Radiograph made to illustrate blurring of bronchi and the lack of lung detail occasioned by motion.**



roentgen ray examination. Our endeavor should be to closely study the normal thoracic structures, searching for any minute pathological change.

### DISCUSSION.

**F. B. Stephenson, Denver:** I am very sorry that Dr. Wasson's paper was forced ahead, because I especially wanted to hear it, and I came in just in time to see the last three plates on the screen, but did not get to hear what he said about intrathoracic movements. We who are doing x-ray work realize that the movements caused by the heart and by respiration are quite a handicap to us in our interpretation of the plates. If a bronchus is moving so that it has a blurred shadow, we are not able to tell whether that blurring is due to the movement or due to a thickened bronchus, and the only way to obviate that difficulty is to get the quickest possible exposure. Dr. Wasson has talked to me a little about the work he is doing, and I know from what he has said it is original. One thing, in our interpretation of chest plates, which makes it a little more difficult for us than the interpretation of any other kind of x-ray work, is the fact that we do not have the advantage of post mortems. We see a great many chest plates, and we are rarely able to follow them up and see the actual pathology with our eyes instead of seeing just the shadows, and hence must interpret those shadows by simply reasoning out their meaning. We imagine that certain lesions give certain kinds of shadows, and when we see those shadows we interpret them as meaning that a particular lesion is there, but we may be mistaken about some of them.

The x-ray in chest cases is particularly valuable in incipient cases, and those are the ones we don't get to do post mortems on except by mere chance; so there is good reason for Dr. Wasson's work in the line of differentiating the normal from the abnormal.

**L. I. Miller, Denver:** I would like to ask if Dr. Wasson had the opportunity to study early pneumonias, and if he did, was he able to determine whether the pneumonic process begins from the periphery and goes internally, or vice versa?

**M. R. Fox, Sterling:** This paper presented by Dr. Wasson deserves a great deal of credit. I don't think we realize the importance of the roentgen ray in connection with our work half as much as we should. It is true that a great many impressions can be gotten in connection with the roentgen ray if we have a certain definite thing formed in our mind. I think if we could eliminate our ideas before we look at a plate, a great many times we would get a better impression, and I think the x-ray is the most valuable means of diagnosis that we have in recent times. I happen to have the good fortune of being connected with an institution where we do a great deal of x-ray work and post mortem work, and in a great many instances the x-rays line up very closely. Of course, there were some conditions that it was only a guess on the part of a great many of us, but I was very much interested in one thing—that pneumonic conditions always started from the periphery and worked in.

**Dr. Wasson, Closing:** My excuse for presenting this paper at the present time was to call attention to certain conditions which I feel it is necessary to overcome if we are to portray the lung as it really is. I hope by this way to lay a basis for future work and take up the clinical side of it more in detail. I have felt in the past we were dealing with gross lesions and we were not of tremendous aid to the internist. We must portray the lesions early, and if we are getting a blurred image on the x-ray plate, certainly we are not portraying the bronchi as they are. I think we should show as much normal structure as possible. In the past it has been our custom to cut out all the normal lung and show only the pathological changes. Under the microscope, a pathologist shows the changes from the normal into the pathological, and there is no reason why we should do otherwise in the x-ray plate. If we do, we are liable to cut out all the border line cases. I think the doctor's question in regard to early pneumonia has been well answered. Certainly it is a gross lesion and difficult to study from the roentgenological standpoint.

In regard to the stereoscopic plate—those are all stereoscopic plates. I don't believe it is possible to get an accurate opinion from one plate alone.

## THE CHEMOTHERAPY OF TUBERCULOSIS.\*

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Introductory.—Evolution and Tuberculosis.

Tuberculosis is one of the oldest diseases known to mankind. Hippocrates, the Greek physician of antiquity, has described it; and centuries before that it was known to the Egyptians. Givler<sup>1</sup>, in a recent communication, cites Smith and Ruffer who have described the skeleton of an Egyptian mummy of about 1000 B. C. in which there are evidences of Pott's disease; there is present necrosis of the bodies of the vertebrae with collapse of the spinal column. Tuberculosis was known to mankind many centuries before this period. Cobbett<sup>2</sup> cites Derry, who describes similar lesions in a mummy belonging to the time 2000 to 3000 B. C. or even earlier. Smith and Jones<sup>3</sup> found ankylosed vertebrae in their studies of Nubian mummies which were probably due to tuberculosis of the spines. It may be stated that tuberculosis of the vertebrae is a disease that has come down to us unchanged through fifty centuries of time and it follows by analogy that pulmonary tuberculosis has existed for the same period of time. There are good grounds for believing, as we shall see presently, that it did not arise with civilized man but rather it existed even in the most primitive prehistoric man, although without doubt the social complex of civilization may have modified some aspects of its pathology, epidemiology and symptomatology.

If tuberculosis were a disease limited to the human race, it would be impossible to trace it farther back than the beginning of civilization; but it also occurs spontaneously in the lower forms of vertebrates and it is by a comparative study of their anatomy and pathology that we are enabled to trace the origin of tuberculosis into the remotest antiquity countless ages before the advent of man, civilized or primitive. However, in making these reckonings we cannot talk in terms of years or even centuries but must resort to the time scheme of the geologist, who divides time into ages.

Just as prehistoric animals are studied from the fossils that they have left, bacteria are studied from their fossil remains. Recently a paleontological study made by Walcott from the Algonkian of Montana (cited by Givler) shows coccoid nitrifying bacteria resembling existing forms of today so closely that no difference in morphology is evident. The age of these fossils is thought to be about 32,000,000 years. Givler is of the opinion that no one can state just when the tubercle bacillus arose, but the inference seems justified that if nitrifying bacteria have undergone so little change, other bacteria may likewise have been extremely stable in spite of vast stretches of time. If we agree with this hypothesis and apply it to the tubercle bacillus we may state that the tubercle bacillus was one of the earliest forms of life on this

\*Read before the Boulder County Medical Society, February 10, 1921.



earth of ours; that it existed ages before the multicellular organisms appeared. Tuberculosis as a disease, however, cannot be said to have arisen until a suitable host appeared upon the earth upon which the tubercle bacillus was capable of adapting itself as a parasite. It is known that tuberculosis occurs spontaneously in mammals such as man and cattle; in birds, of which fifty-five afflicted varieties have been described; in reptiles such as snakes and lizards; in amphibians; in fish such as the carp; etc.

Vertebrates are thought to have developed in the Cambrian age when fish are thought to have arisen, the amphibians arose in the Carboniferous age, the reptiles in the Permian age, and the mammals in the Caenozoic age, and so it may be stated that tuberculosis as a disease probably first occurred in the Cambrian age as a disease of the fish. As the bacteria encountered the rapid evolution of the species, they successively adapted themselves to the emerging species; but this adaptation was consummated only through long ages of time; certainly not in any short interval. Further, as the adaptation to the specific host proceeded the parasite became inherently adapted to the intrinsic chemistry of the host; so that on a priori grounds it could be reasoned that while all tubercle bacilli have a common ancestor, today the different strains have certain inherent chemical and biological characteristics that they have acquired by reason of long association with their specific hosts which differentiate them from the other strains of tubercle bacilli and by which they can be identified. Fortunately we do not have to speculate on this matter, as Theobald Smith<sup>4</sup> has definitely established that the bovine tubercle bacillus has a definite chemical reaction curve by which it can be identified as distinct and different from the human tubercle bacillus.

If we accept the evolutionary doctrine of living matter we are enabled a priori to pass judgment on some fallacies that have crept into the literature. When an observer records the transmutation of bacteria from one definite strain to another, as a modern bacteriologist has recently described the artificial transmutation of the streptococcus to the pneumococcus, we can dismiss the entire subject by saying that it is contrary to basic evolutionary principles. Likewise, neither can it be true that if a tuberculous person expectorates into an aquarium and then permits turtles to swallow the sputum, within a space of months there will develop an attenuated strain of tubercle bacilli in the turtle which afford immunological protection when injected into man; this again seems contrary to the principles of evolution. Yet this is exactly the basis for the turtle bacillus vaccine of Friedman and a gullible American public paid him an exorbitant price for his crude basic biologic blunder. The streptococci are a definite strain of bacteria with certain inherent characteristics developed through long ages of time, as are also the pneumococci, and they cannot be transmuted from one group into the other in any short period of time, no more than a dog can be changed into a cat. The turtle may swallow human tubercle

bacilli, but they remain human tubercle bacilli and cannot be anything other in any short period of time. We may take a wildcat, cut its claws, extract its temper and substitute a soft purr, tie pink ribbons about its neck and teach it to recline ornamentally on the parlor arm chair; but it remains a cat throughout all of these cultural changes of habitat. Put it back into the wilds, thus reverting its culture, and it becomes wild or virulent again. The species are alterable but not in the space of weeks or months. Alteration of the species does occur, but it occurs spontaneously and by the process of natural selection. There are even stronger reasons from an immunological standpoint why the Friedman turtle bacillus vaccine should fail. But since it is not the purpose of this paper to discuss immunity we will pass on to our subject.

Let us take another minute to consider the tubercle bacillus as a biological organism. The tubercle bacillus is a unicellular organism that possesses all the attributes of living matter. It is capable of irritation, receptivity, conductivity, retentivity, responsiveness, growth, metabolism, reproduction and death. A cell is defined as a mass of living protoplasm containing a nucleus. The tubercle bacillus is a mass of living protoplasm containing no nucleus but instead nuclear material and a very definite fatty capsule. The tubercle bacillus is capable of responding to chemical, physical, electrical, thermal and biological stimuli.

#### General Principles of Chemotherapy.

It is the function of chemotherapy to destroy the tubercle bacillus as a parasite in man by the use of pharmaceutical chemicals; although we may as well admit at the start that we may never hope to eliminate it from the lower vertebrates. Scientific chemotherapy may be said to have developed under the guidance of Ehrlich who devised a number of compounds to destroy trypanosomes and spirochetes in the body. Empirical chemotherapy, however, was practiced for centuries before that; and surprisingly enough has yielded, accidentally it is true, some very valuable therapeutic agents. We owe one of the few specific drugs in medicine to the natives of South America who chewed the bark of the Cinchona tree to cure their fevers.

One of the fundamentals of chemotherapy is that the drug meets the organism in the body and destroys the organism. In the trypanosome and certain protozoan infections, the habitat of the infectious organism seems to be the circulating blood stream. In these diseases it is necessary to get the drug into the blood stream, which is comparatively easy. In tuberculosis, however, the bacteria are for the large part removed from the blood stream, which complicates the problem of chemotherapy; second, the tubercle is avascular, and, third, the bacilli are frequently surrounded by dead cells. These three factors merit special consideration as pointed out by Wells<sup>5</sup>: (a) the remoteness of the tubercle bacillus from the circulating blood stream, (b) the avascularity of the tubercle, (c) the immediate juxtaposition of necrotic cells. While it is easy enough to see how each of these



factors may be a hindrance in chemotherapy, surprisingly enough some of these same factors may also be of direct assistance. Avascularity of a tubercle may interfere with the entrance of a drug, but it is also conceivable that the chemical agent, having entered it, accumulates there, and this is exactly what happens when calcium salts enter the tubercle with the resultant calcification of the tubercle; and here we have nature's attempt at a chemotherapeutic agent in tuberculosis—calcification! Further the presence of dead cells may in certain cases destroy the drug, but it is also possible that they may activate it by the liberation of enzymes.

In attacking the problem of chemotherapy of tuberculosis we must consider, as pointed out by Wells, first, to what extent different classes of chemical substances enter the tubercle; second, to what extent they tend to accumulate there; third, how long they remain there. In studying the first of these phases, namely, what class of drugs enter the tubercle, we consider the permeability of the tubercle, for it is this factor which determines the rate of entrance of the drug. In discussing the experiments that have been performed on this subject, and the succeeding points that we will take up, we must of necessity limit ourselves and take up only a few of the more significant observations.

Loeb and Michaud<sup>6</sup> have shown that tuberculous lesions of the eye manifest an increased capacity for taking up iodine injected into the body and that the amount of iodine so taken up is disproportionately large compared to the normal tissues. This iodine absorbing capacity of pathological lesions is by no means limited to tuberculosis. Van der Velden<sup>7</sup> reports increased iodine content in metastatic carcinomatous growths of the liver and pancreas, also in the abdominal, pleural and pericardial fluids of a man dying of cancer who had received subcutaneous injections of sodium iodide. Loeb<sup>8</sup> reports a large iodine content in the hypertrophied glands of a syphilitic. Nor is the iodine absorbing capacity limited to specific lesions. If agar be implanted into animals it very readily takes up iodine from the body as shown by Wells and Hedenburg<sup>9</sup>. Iodine and its salts are crystalloids; on the other hand if colloids are injected into a tuberculous animal they may not be taken up by the tubercle. Wells and Hedenburg have clearly shown that if egg albumen is injected into tuberculous guinea pigs it does not penetrate the tubercle for some time at least, if at all, and so these authors conclude that the supposed affinity of certain drugs for certain pathological tissues merely depends on a decreased impermeability of the diseased cells, or diffusion into inflammatory exudates present in the diseased area, or both; further, tuberculous lesions behave in some respects like colloids, permitting crystalloids to diffuse through them readily, but they are little if any at all permeable to colloids. Sifting these experiments and conclusions down we arrive at a general principle in the chemotherapy of tuberculosis:

The specific tuberculocide may be a crystalloid.

The next point that presents itself for study is fat solubility, since both the tubercle and tubercle bacillus are rich in lipid substance. It might be reasoned that because of this abundance of lipid material in the tubercle and tubercle bacillus, a substance possessing fat solubility might more readily effect an entrance into the tubercle. However, the reverse was found to be true. Corper<sup>10</sup> studied the influence of fat soluble dyes on tuberculous lesions extensively. Fat soluble dyes were administered to tuberculous guinea pigs under all sorts of conditions but they were never found in the tubercles. He showed that no matter how completely the fat of an animal might be saturated with fat stains, such as Sudan III and Scarlet R, no trace of the dye ever appeared in the tubercle or tubercle bacillus. On the other hand Sherman<sup>11</sup> has shown that water soluble dyes do penetrate the tubercle and tubercle bacillus readily. So we arrive at another general principle in chemotherapy of tuberculosis:

The specific tuberculocide need not possess fat solubility to penetrate the tubercle.

#### Specific Chemotherapy.

In order that we may better understand the range of action of a drug used in chemotherapy, let us outline the possible action that may be expected of it.

#### Action of Chemotherapeutic Agents.

##### I. Direct.

- a—Specific bactericidal—capable of killing bacilli in the body.
- b—Specific inhibitory—capable of inhibiting the growth of bacilli in the body.

##### II. Indirect.

- a—Local—affecting the tissues of the tubercle.
- b—General—affecting the entire animal body.
  - 1—Stimulation of the non-specific activity of the tissues to attack the lipid capsule of the tubercle bacillus.
  - 2—Stimulation of more or less specific lipid antibodies, if any such exist.
  - 3—Stimulation of the cellular defensive mechanism of the body to phagocytosis.
  - 4—Stimulation of general body nutrition.

In the realm of specific chemotherapy are the chemical agents that will act directly against the tubercle bacillus, either specifically bactericidal or specifically inhibitory. An instance of direct specific bactericidal action, although not in tuberculosis, is that of certain arsenic compounds against the spirochetal infections. An instance of direct inhibitory action is that exercised by sodium cinnamate, which inhibits the growth of but does not destroy the tubercle bacillus.

Let us now hastily review some of the work that has been done on specific chemotherapy. If we take a smear of sputum on a glass slide and stain it with methylene blue, we are all familiar with what happens. The nuclear ma-



terial of the sputum takes up the dye, and it is this phenomenon that enables us to clearly differentiate the cytological and bacterial elements. Now if we inject methylene blue intravenously into an animal likewise the nuclear material takes up the dye, wherever the blood circulates, and that of course means the entire body. The possibilities for study become infinite by this means. It is easy to grasp at once how this method becomes very valuable in the study of multiple problems in anatomy, physiology and pathology. In pathology it is especially valuable in the study of the pathogenesis of any disease. It was early observed that the vital dyes penetrate the tubercle easily; it is therefore natural that this method should be considered a possible therapeutic agent in tuberculosis. This subject has been studied extensively abroad and here; and while the Germans report favorable results, De Witt<sup>12</sup> of this country did not find any curative effects from methylene blue or from other dye in infected tuberculous guinea pigs.

The therapeutic value of copper has also been studied extensively by the Germans who report favorable results with it but here again the experiments of the American workers are in total disagreement. Naturally, while considering the metals in therapy, gold should come into consideration—one of the noblest of them all, the hope and dream of the alchemist of the middle ages; and gold does seem to hold forth promises. Some encouraging results have been reported. The gold molecule has been modified in many ways. It has been added to cantharidin as a vehicle, then, because this was found to be toxic, it was further modified by adding ethylene diamine, giving us the following:

Cantharidyl-ethylene-diamine-aurous-cyanide.

This has yielded promising results in the hands of some workers but not in others.

Sodium cinnamate is an instance of a drug that exercises a definite inhibitory action against the tubercle bacillus but does not possess a tuberculocidal action. This drug was first extensively studied by Landerer<sup>13</sup>; more recently it has been investigated by Corper, Gauss and Gekler<sup>14</sup>, who conclude that it has a distinct inhibitory action to tubercle bacilli in 5 percent glycerine-agar in a concentration of 0.05 percent, while in rabbit blood medium, both fresh and inspissated, it is inhibitory in a concentration of 0.2 percent. Encouraged by these results, they attempted to maintain a concentration of sodium cinnamate in the blood of the rabbit sufficient to inhibit the growth of tubercle bacilli in the body, by a continuous intravenous injection apparatus, but they found that this procedure caused hemolysis of the blood of the animal and the work had to be abandoned for that reason.

Chaulmoogra oil has recently been attracting considerable attention by reason of announcements in the lay press that the public health service would undertake the study of it in tuberculosis, with the natural exaggeration of statement to which the lay press is prone. Chaulmoogra oil has been used since time immemorial in the treatment of leprosy and apparently with

success. Chaulmoogra oil is a fixed oil expressed cold from the seeds of the *Taraktogenos Kurzii* King, a native tree of Burma. It has a melting point of 22°C., a specific gravity of 0.951 at 25°C., an acid value of 23.9, saponification value of 214.0 and an iodine value of 103.2. Thus far it does not differ much from other oils, but in two respects it is different from every other known fixed oil. It is optically active as given (a)  $D = +52.0$  C.; as far as

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known it is the only fixed oil that is so; and its structure is given as a closed carbon ring. The structure of the fatty acid of every other oil is given as an open chain.

Walker and Sweeney<sup>15</sup> have recently studied the action of chaulmoogra oil and the sodium salts of its fatty acids. They conclude that chaulmoogra oil contains bactericidal substances that are about one hundred times more active than phenol; that the bactericidally active substances of chaulmoogra oil are the fatty acids of the chaulmoogric series, chaulmoogric and hydnocarpic acids and possibly lower isomers of this series; that the bactericidal activity of the chaulmoogric acid-fast series is specific for the acid-fast group of bacilli and inactive against all other bacteria tested, and that the specific bactericidal activity against the acid fast bacilli is a function of the closed carbon ring. They report no clinical observations. Further reports with this agent will be awaited for eagerly as it seems to have possibilities, but in the present stage of the study judgment must be reserved.\*

We have thus briefly and hastily reviewed the progress of chemotherapy in tuberculosis. Closer and closer is the scientific web being drawn about the tubercle bacillus. It is only a question of time and perseverance until the *therapia magna sterilisans* will be found that will rid the human race of the great white plague.

The writer wishes to express his sincerest gratitude to Dr. H. J. Corper, Director of Research, for his generous assistance and guidance in the preparation of this paper.

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\*Since the reading of this paper, Kolmer, Davis and Jager (Jour. Infect. Dis. 1921, 28, 265) report that chaulmoogra oil has no appreciable germicidal effect on virulent tubercle bacilli as determined by an in vitro-vivo method employing guinea pigs.



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(Continued from August, 1919)

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**PROSPECTIVE ESSAYISTS FOR THE COMING MEETING OF THE STATE MEDICAL SOCIETY AT PUEBLO SHOULD SEE TO IT THAT THE TITLE AND ABSTRACT OF THE SUBJECT THEY EXPECT TO PRESENT ARE SUBMITTED AT ONCE. DELAY OR PROCRASTINATION MAY LEAD TO EXCLUSION FROM THE PROGRAM AND THE COMMITTEE WILL REFUSE TO ACCEPT THE RESPONSIBILITY. DO IT NOW!**

## News Notes

Railroad rates to the American Medical Association meeting will be approximately \$120, round trip, going May 29-June 22, return limit June 16. See editorial comment.

Golden is making an effort to secure one of the U. S. Government hospitals for ex-service men.

The banquet and other entertainment which had been planned for Dr. Work will probably not be given because of the inability of the honor guest to attend.

A small hospital with three graduate nurses is to be fitted up at Wray for the use of all doctors in that locality.

Twenty or more cases of typhoid fever existed in Las Animas in March. The health officials are unable to arrive at any conclusions in regard to its source.

On account of illness Dr. H. O. Dodge has tendered his resignation as surgeon at the Soldiers' and Sailors' Home at Monte Vista and on May 1 will return to his home in Boulder.

Dr. and Mrs. H. C. Goodson of Colorado Springs were severely injured in an automobile accident in Denver March 18.

Dr. David A. Strickler of Denver has been re-elected president of the Federation of State Medical Boards of the United States.

Dr. C. D. Spivak of Denver left for New York City the latter part of March, expecting to be gone about two weeks.

The American Proctologic Society will hold its twenty-second annual meeting in Boston June 3, 4 and 6. The profession at large is invited to attend the public sessions.

The Pueblo County Medical Society is carrying out a prepared program for its semi-monthly meetings, covering the entire year. The part of this program applying to the remainder of the year will be found in "Medical Societies", this issue.

The American Journal of Surgery for May will contain a symposium on fractures, consisting of twelve articles by recognized authorities.

Dr. F. C. Buchtel of Denver underwent an operation for appendicitis in the early part of April, and at the time this is written is reported to be doing well.

According to press notices, twenty-six physicians of Boulder, Lafayette and Louisville have jointly bought a large home in Boulder at a cost of \$30,000 and converted it into a hospital. The plant is to form the nucleus of a large institution. It will be increased as the need for more accommodations grows.

The striking of the enacting clauses in the Senate bill regulating the practice of the healing art, the Senate bill providing that vaccination shall not be required for admission to any public school, and the bill to provide for a board of chiropractic examiners, were the outstanding actions of the State House of Representatives in session April 2.

Dr. C. S. Elder, for many years a resident of Den-

ver and active in medical affairs, has recently removed to Sterling, where he will be permanently located.

Dr. T. E. Carmody of Denver left April 8 for a two weeks' trip on which he will visit Culver, Chicago, Rochester and Minneapolis.

### Jefferson Graduates, Attention.

Dr. Samuel W. Miller, Metropolitan Building, Denver, recently elected vice president of the Alumni Association of the Jefferson Medical College, would like to get the addresses of doctors in the state who are Jefferson graduates.

### Wisconsin Home Coming.

The State Medical Society of Wisconsin will celebrate its seventy-fifth birthday by holding a "Home-Coming" meeting in Milwaukee, September 7, 8 and 9, 1921. All former Wisconsin men, whether they have practiced there or left Wisconsin to study medicine, practicing elsewhere after graduating, are invited to this home-coming. The officers of the society, are anxious to secure at this time for mailing purposes the names of all former Wisconsin men. They will confer a favor by sending their names and addresses to Dr. Rock Sleyster, secretary, Wauwatosa, Wis.

### DEATHS.

Dr. Stanley B. Eichberg of Denver died on March 25, at the University of Pennsylvania hospital in Philadelphia, at the age of forty. Dr. Eichberg was graduated from the Miami Medical School and practiced in Toledo, Ohio, for a short time. For the past ten years he has practiced in Denver, specializing more recently in ear, nose and throat work in association with his father-in-law, Dr. Robert Levy. The cause of death was tumor of the brain.

### THE STATE SOCIETY PROGRAM.

The time to decide upon the title and subject of a paper to be presented at the next meeting is now. The committee intends to keep this fact before the membership each month in order to be in a position to controvert accusation passed upon a supposed lack of opportunity.

## Medical Societies

### COLORADO OPHTHALMOLOGICAL.

The regular meeting of the Colorado Ophthalmological Society was held on February 19, 1921, in the assembly hall of the Medical Society of the City and County of Denver, Dr. D. G. Monaghan presiding.

W. C. Bane, Denver, presented a man whose right eye had been penetrated by the end of a nail, which stuck in the eye and was pulled out by a layman. Discussed by Edward Jackson, G. L. Strader, W. C. Finnoff, J. M. Shields, F. R. Spencer, and E. R. Neeper.

W. C. Bane, Denver, presented a man whose left eye had on January 18, 1921, been burned with a hot welding compound consisting of borax and iron filings. The patient now showed a marked contraction of scar tissue in the affected area of the bulbar and palpebral conjunctiva. The sight was however not apparently affected. Discussed by J. J. Pattee.

J. M. Shields, Denver, presented a man whose right eyeground had an apparently congenital peculiarity consisting of small rounded areas of pigmentation at some distance below the optic disc. Discussed by F. R. Spencer.

D. A. Strickler, Denver, presented a woman who had been suffering from a disturbance of vision apparently due to a multiple infection of the nasal accessory sinuses. The case had unfortunately fallen into the hands of a dentist who had disregarded the wishes of the physician and had limited treatment to irrigation of the antrum through an opening in the alveolar process. The patient was getting rather worse than better. Discussed by J. A. Patterson and F. R. Spencer, both of whom strongly disapproved of the tendency of some dentists to assume the responsibility of telling patients that such conditions would be adequately treated by draining the antrum into the mouth.

H. M. Thompson, Pueblo, presented a woman



aged twenty-two years who since August, 1918, had been suffering from an apparently tuberculous disturbance of the left and later of the right eye. During 1920 the family physician, on account of a positive Wassermann reaction, had given the patient a great deal of antiluetic treatment, during which the left eye became steadily worse. There were granulomatous masses in the anterior chamber of the left eye. A sharp reaction was produced in each eye by a subcutaneous injection of old tuberculin; and in the course of a few weeks, under rest, proper diet, tonics, local treatment of the eyes, and several injections of old tuberculin, the patient's general health improved, and both eyes showed a marked improvement. Discussed by J. A. Patterson and Edward Jackson.

H. M. Thompson, Pueblo, reported the case of a man whose right eye had been penetrated by a piece of baling wire, which was found imbedded in a yellowish mass in the anterior chamber, and was successfully removed by special manipulations with the giant magnet, without injuring the iris. The eye had since done well.

WM. H. CRISP,  
Secretary.

#### FREMONT COUNTY.

The regular meeting of the **Fremont County Medical Society** was held at Florence in Dr. V. A. Hutton's office, March 28, 1921. Members present: Drs. Wilkinson, Orendorff, Graves, Graves, Holmes, Little, Webb, Rupert, Hutton and the speakers of the evening, Dr. C. H. Evans and Dr. D. A. Vanderhoof.

The secretary read in detail some lengthy correspondence that had taken place with the secretary of the A. M. A., and the secretary of the State Society relative to practice by irregulars, but no definite action was taken and the correspondence was ordered to be filed.

Dr. D. A. Vanderhoof read a splendid paper on "Acute Otitis Media in Children." The speaker advocated hot irrigation if the cases were seen very early, and if there was not prompt relief a free paracentesis was to be done unless there was an extensive rupture of the drum already present, this to be followed after twenty-four hours by frequent irrigations. In discussion all members did not agree with the practice of irrigation following rupture or paracentesis.

Dr. C. H. Evans then gave a reminiscent talk about his service with the British Army in the far east. The doctor was in active service for three years and from his wonderful experience recited many instructive and interesting incidents, some of which might be classed as "untold tales".

During the evening the doctor exhibited some unusual souvenirs personally collected in Egypt.

OTIS ORENDORFF,  
Secretary.

#### OTERO COUNTY.

The following is a report of the meeting of **Otero County Medical Society**, held at Santa Fé Hospital, La Junta, March 23, 1921, as a memorial to the late Dr. Frank Finney. A paper by Dr. R. Finney of Pueblo on "Peptic Ulcer" was very interesting and practical and was discussed by nearly all present.

Dr. A. L. Stubbs gave a short biography and reminiscence of Dr. Frank Finney.

Mrs. Finney and Dr. R. Finney were guests of the Society at a dinner at the Harvey House at 7:00 p. m.

G. E. CALONGE,  
Secretary.

#### PUEBLO CLINICAL AND PATHOLOGICAL.

The regular monthly meeting of the **Pueblo Clinical and Pathological Society**, was held Wednesday evening, March 16, 1921. Two papers were given:

Dr. W. F. Rich: Subject, **The Why of a Tachycardia**. He reported the following case:

A woman 24 years of age was seen by me on January 12. She presented symptoms of influenza, complicated by tonsillitis. Recovery uneventful. left hospital January 20. February 10, complained of great weakness, shortness of breath, precordial pains. Examination: Pulse, 120; temperature, 99°; heart action weak, tonsils enlarged, urine normal and blood examination normal. Tonsils removed February 17. Remained in hospital three weeks and left with normal temperature, pulse 74-78; no precordial pain or shortness of breath.

Three days after her return to her home, precordial pain returned, pulse advanced to 120, temperature 99° to 100°. Under treatment of absolute rest

in bed, strychnin and purgatives, temperature and pulse returned to normal in two weeks.

My conclusion was that her last illness was due to the fact that the poison already in her body occasioned by the infected tonsils had not been eliminated.

#### Discussion.

**Dr. Epler:** I am disappointed in Dr. Rich's paper in that I came here to find out the "Why" of a tachycardia. However, maybe he is holding this explanation for his closing talk.

**Dr. Heller:** A very important symptom in making a correct diagnosis is the pulse; whether regular or irregular. A very common type is one in which we have heart paroxysm. Also we have the toxic type and these are most often found in tuberculosis. His first case may be one of this type. His second case may possibly be of the toxic variety from the anesthetic.

**Dr. Rich in closing:** I found nothing in my first case to indicate tuberculosis, and several thorough examinations have been made. I depend a great deal on the facial expression in making a diagnosis of incipient tuberculosis. I thank Dr. Epler for his enlightening remarks in aiding me in diagnosing these cases. In my second case I have suspected that the temperature may have been caused by a toxic bowel. This would probably be true in any case in which the bowel was 48 hours late.

Dr. F. J. Peirce reported a case, showing the specimen removed, and a dry specimen of the same condition for comparison.

#### Osteo-Cystoma of Middle Turbinate.

Mrs. H., age 34, housewife, examined February 15 and a tentative diagnosis of hypertrophied middle turbinate made. Following are the symptoms, examination and operative findings:

1. Headache, post-orbital and infra-orbital, worse on rising. Sometimes disappears during the day.

2. Patient a quiescent tubercular.

3. Habits normal for tubercular subject.

5. Complete obstruction of right nasal fossa save for small space along floor. Middle turbinate greatly enlarged, of stationary appearance. Does not shrink on local treatment. Discharge from right nose copious, stringy, purulent material.

Operation February 16, 1921.

Local anesthetic.

With Ballinger swivel knife, horizontal portion of middle turbinate cut its entire length and growth forced forward. Posterior half was crushed and lost its permanent formation, but anterior half showed itself plainly an osteo-cystoma with septum formation within, and contained heavy stringy muco-purulent material. Usual packing; removed, none replaced.

February 18. Patient states all headache ceased. Free drainage from ethmoidal region.

February 24. Patient completely relieved, no returns of headache. Discharge still continues.

#### Discussion.

Dr. Epler asked if the wet specimen he shows was a normal condition inasmuch as he showed a skeleton in which the same condition was present.

Dr. Pattee spoke of the vacuum symptoms being of value in diagnosis.

Dr. Wallace spoke of the degenerate cystic type at either end of the turbinates and suggested that the specimen Dr. Peirce removed was of this type and that the dry specimen was likely an anomalous one.

Dr. Finney asked if the tissues at time of operation shrank with adrenalin applications.

Dr. Peirce, in closing, said that the dry specimen he thought was anomalous and not pathological. In answer to Dr. Finney's question, stated that the specimen did not shrink very much.

The subject of **Hyperthyroidism** was up for general discussion.

Dr. Finney mentioned various tests for metabolism in this condition and mentioned gasometer as representing the best machine. He spoke of the drug tests, such as quinine, stating that you will not get a cinchonism if the disease is present. In giving large doses, if the disease is not present, we soon get the poisoning effect. Dr. Heller spoke of the metabolic rate and laboratory diagnosis. He stated tachycardia was always present in the disease. He spoke of the sugar test as one in which the metabolic process shows you rapidity. He explained the nitrogen in detail and mentioned other tests such as adrenalin, temperature and skin and atropine; suggested the "Soldier Heart" as a condition to be diagnosed from a tachycardia.

Dr. Peirce spoke of the toxic symptoms and said that the matter of focal infection is being very



much overridden, stating that the pulling of teeth is very infrequent as compared with a few years ago.

Dr. Rich spoke of the skin test and said that in his opinion, it is very uncertain.

Dr. Epler mentioned a case in which from ocular observation, he could not see that hypertrophy was present but that the diagnosis was made by laboratory tests and that they proceeded with surgery and treatment as indicated by these tests.

Dr. H. M. Thompson reported a case and especially mentioned headaches as a symptom of varied severity and irregularity. At times, tremor of tongue and voice, pulse very irregular in rhythm, voice very irregular as to pitch, at times a little temperature. He stated that all laboratory tests were made which were all negative but that in spite of the tests being negative, he thought the diagnosis was one of hyperthyroidism.

Dr. R. H. Finney made a report of the meeting of the American Congress on Internal Medicine. He especially mentioned that the announcement was made that it was pretty positively proved that they had isolated the germ producing scarlet fever at Johns Hopkins.

F. E. WALLACE, Secretary.

### PUEBLO COUNTY.

The Pueblo County Medical Society program for the remainder of 1921 is as follows:

April 5—Address. Dr. Edward Jackson of Denver, Colo.

April 15—State Care of Insane. Dr. H. A. La-Moure. Oddities of Mental Diseases. Dr. E. H. Steinhardt.

May 3—Functional Menstrual Disorders as Influenced by Internal Secretions. Dr. R. C. Robe. The Care of the Obstetric Woman. Dr. T. A. Stoddard.

May 17—Cystitis, Its Diagnosis. Dr. Harold T. Low. Accessory Sinuses. Dr. F. J. Peirce.

September 6, 7, 8—Meeting Colorado State Medical Society.

September 20—Potential Inguinal Hernia in Connection with Industrial Work. Dr. R. W. Corwin. Treatment of Bladder Tumors. Dr. Geo. M. Myers.

October 4—Asthma. Dr. John G. Wolf and Dr. Fred M. Heller.

October 18—Anthrax. Dr. R. S. Johnston of La Junta, Colo. Experimental Studies in Tuberculosis. Dr. H. R. Sickafoose.

November 1—Gynecological Diseases Met With Most Frequently. Medical Aspect. Dr. Ray R. Taylor. Surgical Aspect. Dr. Jos. F. Snedec.

November 15—Radiographic Studies of the Chest. Dr. B. B. Blotz, Rocky Ford, Colo.

December 6—Eclampsia. Dr. Wilbur Lucas and Dr. Wm. S. Hutchinson.

December 20—Indications for Different Types of Surgery of the Gall Bladder. Dr. J. C. Epler.

## Book Reviews

**Keen's Surgery.** Volume VII. By Surgical Experts. Edited by W. W. Keen, M.D., LL.D., Hon. F.R.C.S., Eng. and Edin., Emeritus Professor of the Principles of Surgery and Clinical Surgery, Jefferson Medical College, Philadelphia. Octavo of 855 pages, with 359 illustrations, 17 of them in colors. Philadelphia and London: W. B. Saunders Company, 1921.

The seventh volume of Keen's Surgery, a supplementary volume, is published to include the surgical advances of the last few years and keep Keen's System abreast of the times. As the great war has contributed most of the new ideas in surgery, so does this volume deal largely with war problems. The different subjects are covered by different authors selected from men of experience in the special lines.

Probably to a military man the book is especially appealing as no phase of war surgery is omitted. Chapters are devoted to the organization and administration of the Medical department in time of war. On the clinical side, all forms of war trauma are considered with their complications such as gas gangrene, tetanus, hemorrhage and shock. The military phase of these various injuries is particularly emphasized as to treatment on the field and other places, best methods of transportation, etc. Besides the acute conditions, the problems of convalescence are taken up in chapters on vascular, nerve and orthopedic surgery.

There are many things, too, of value to the civilian surgeon. Shock is considered by Cannon. A

chapter on blood transfusion includes the latest methods. The many improvements in treating fractures applied during the war are embraced in chapters by Blake, Eisendrath and Strauss. The Carrel-Dakin treatment of infected wounds is explained in detail. Pool considers the surgery of joints, including that radical change in treatment as described by Willems of Belgium. Jones on military orthopedic surgery considers problems that frequently trouble general surgeons.

The volume is mainly a treatise on military surgery. Every civil surgeon should at least glance over it to profit from the experience of the best American and British surgeons gained in treating enormous numbers of injuries of every kind and description.

G. B. P., Jr.

**United States Naval Medical Bulletin.** Quarterly, January, 1921. Mare Island Hospital Number. Published by Division of Publications, Bureau of Medicine and Surgery, Navy Department for Information of Medical Department of the Service. Capt. J. S. Taylor, M.C.U.S.N., Editor. Government Printing Office, Washington, D. C.

This is the first of the Quarterly Bulletins published by the new administration in the Bureau of Medicine and Surgery under Rear Admiral E. R. Stitt, M.C.U.S.N., and deals for the most part with the history of the Mare Island Hospital from its inception aboard the old Sloop of War "WARREN" in 1854, giving in detail the present plan and the routine of every service.

The correspondence relating to the founding of the hospital smacks of the "Ould Navie". The remainder of the number is a pot pourri of interesting case reports and service hints, with one notable exception, an article by the Editor, historical of Alexis Soyer who served as chef with the Allied Armies in the Crimea and, with Florence Nightingale, revolutionized the welfare of armies in the camp, the battlefield and the hospital.

Though not uncommon, still it is refreshing to find one of our numbers to have the time and inclination to turn from the purely medical to the literary. This sketch of "Capt. Cook, Knight of the Saucepan," is delightfully human and historically interesting.

E. I. S.

**Diabetes:** A Hand Book for Physicians and Their Patients. By Philip Horowitz, M.D. 196 pages with 29 illustrations. New York: Paul B. Hoeber, 1920. Cloth; price, \$2.00.

This is a small volume well adapted to the use of the physician and the diabetic, aiming to bring about more intelligent co-operation between doctor and patient. In this book, instead of mentioning the various forms of food permissible under certain conditions, the author has given in concrete form the daily regimen. The tables showing the analysis of foods are of value in the working out of a carefully adjusted diet. The author believes that diabetes is the result of autointoxication, causing an interference with the ductless glands, basing his conclusions on the results of animal experimentation. On the whole the book is well written and readable and can be commended to both physician and layman.

J. L. M.

### NEW AND NONOFFICIAL REMEDIES.

During March the following articles were accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Abbott Laboratories: Tablets Acriflavine-Abbott 0.46 Grain.

Armour & Co.: Ampoules Pituitary Liquid-Armour 0.5 Cc.

Hynson, Westcott & Dunning: Sterile Ampoules of Benzyl Benzoate-H. W. D.

E. R. Squibb & Sons: Arsphenamine-Squibb; Neoarsphenamine-Squibb; Sodium Arsphenamine-Squibb.

### Library Collection on the History of Medicine.

With the aid of a gift from Dr. Adolph Barkan, emeritus professor of the Stanford Medical School, the University is gathering in the Lane Library of the Medical School in San Francisco a collection on the history of medicine that will be equaled by no other western institution.

Dr. Barkan will give \$1,000 a year for the next three years, to which the university will be able to add from the income from certain Lane Library Foundations \$1,500 a year, making a total fund of \$7,500, all of which will be expended on books concerning the history of medicine.

Dr. Barkan himself, is now in Europe and he



has employed an expert and has also gained the assistance of one of the most celebrated professors in Europe to aid him in getting together this collection.

#### HOW ANIMALS SAVE HUMAN LIVES AND PREVENT CRIPPLES.

That the usefulness of animals to mankind extends far beyond the food, clothing and other material needs they supply is shown by studies of the Bureau of Animal Industry of the United States Department of Agriculture. In a recent address, Dr. E. C. Schroeder, superintendent of the experiment station of that bureau, gave the following instances in which experiments with animals contribute to human health and are of economic advantage otherwise:

The Panama Canal would not have been built by this time if animal experimentation had not revealed the specific nature of yellow fever. If it had finally been constructed with no better knowledge of yellow fever than when the French abandoned the project after a cost of 20,000 lives, it would have deserved such a name as "The water lane of the yellow death."

Animal experimentation has provided vaccines, bacterins, and antitoxic serums; it has aided in the development of new methods of surgery and of reliable means of diagnosing infectious diseases; it taught us how to use gases during the war and how to defend our soldiery against them. In the absence of such knowledge the recent war would have cost additional thousands of lives and would have produced many additional thousands of cripples.

If animal experimentation had not taught us how to cure many diseases of the lower animals and how to suppress appallingly destructive livestock plagues, the hunger and starvation prevalent in some parts of the world would be practically universal. Experiments with animals have provided means for controlling human diseases like smallpox, Asiatic cholera, bubonic plague, malaria, typhus fever, etc., in addition to yellow fever already mentioned.

Experiments with live stock have contributed richly to the current knowledge of drugs and their uses and to the precise information we have of the therapeutic, physiologic, and toxic actions of the innumerable substances from which our useful drugs have been selected.

Without specific knowledge of how drugs act on the body as a whole, or on special parts of the body, and whether their action is immediate or cumulative, the death rate among persons and animals would be multiplied, and the greater losses among the latter would be a serious economic disadvantage.

Animal experimentation has proved that the manifestations of tuberculosis in different portions of the body and in the bodies of different species of animals all have one essential cause; it proved that the disease is contagious; it led to the discovery of the tubercle bacillus; it proved that the bacillus is quickly destroyed by light, but may long remain alive and virulent in dark places; it proved that there are three types of tubercle bacilli, the human, the bovine and the avian; it proved that the avian type is not an important cause of disease among animals; it proved that the human type is the commoner cause of tuberculosis among human beings; it led to the discovery of tuberculin, without which, used as a diagnostic agent, the control and eradication of tuberculosis among food-producing animals would be impossible.

Experiments with animals have given information that prevents untold suffering of both persons and animals by aiding in the preservation of health and hastening recovery from sickness. Persons who treat diseases among animals probably relieve more pain every day than animal experimentation causes in a score of years; and they do this through the agency of knowledge that the experiments supplied.

The foregoing summary of results is believed to be of general interest, especially as it relates to the frequent assertion that live stock receives more scientific study than human beings. The fact remains, however, that greater knowledge and skill applied to live stock raising is a definite means of benefiting mankind. For instance, the development of an ample and safe milk supply is obviously a practical way to reduce mortality among and to correct undernourishment of babies. Similarly the eradication of parasites in sheep is an essential step toward an adequate supply of wool clothing.

#### RESOLUTIONS ADOPTED BY THE HOUSE OF DELEGATES OF THE STATE MEDICAL SOCIETY OF WISCONSIN AT ITS ANNUAL MEETING IN LA CROSSE, SEPTEMBER 8-10, 1920.

First: Whereas, in our forty-eight states, there are as many separate examining boards, and

Whereas, Licensed physicians in one state may not always practice in other commonwealths without vexatious procedures, and

Whereas, the practice of medicine is uniform throughout the length and breadth of the land; therefore, be it

Resolved, that it is the opinion of the House of Delegates of the State Medical Society of Wisconsin that the right to practice medicine in one state should be extended to include the right to practice medicine in any part of the United States.

Second: Whereas, the practice of indiscriminate prescribing of liquor by some members of the medical profession on the mere request therefore, and without regard to the need of the individual, is bringing our profession into disrepute, and

Whereas, the State Medical Society of Wisconsin, as a body, desires to affirm its wish that all its members shall render strict obedience to the laws, whatsoever they may be; therefore, be it

Resolved, that the State Medical Society of Wisconsin as a body, condemns all and every effort on the part of the medical profession to take unfair advantage of the privileges to the physician under the law by the indiscriminate granting of prescriptions for the purchase of alcoholic stimulants.

Third: Be it further resolved, that copies of the above resolutions be sent the proper officers of all State Medical Associations for such action as they might see fit to take.

Respectfully submitted,

ROCK SLEYSTER, M.D., Secretary.

#### The Survey of Cripples in New York City.

Published by request:

To the Editor: The New York Committee on After-Care of Infantile Paralysis Cases published and distributed the report of "The Survey of Cripples in New York City."

Our aim has been to send this report to those in a position of responsibility in agencies for cripples and to all those who might have a general interest in cripples, and in plans for their aid. The undersigned would be glad to know of anyone who has been overlooked and would appreciate suggestions for further possible distribution of the report.

ROBERT STUART, Director,  
N. Y. Committee on After-Care of Infantile Paralysis Cases, 69 Schermerhorn Street, Brooklyn, N. Y.

## Papers for Pueblo Meeting Acceptable Now

Send Title and Abstract  
to

G. A. Moleen, Chairman  
Mack Block  
Denver, Colo.



# Colorado Medicine

OWNED AND PUBLISHED BY COLORADO STATE MEDICAL SOCIETY

## PUBLICATION COMMITTEE.

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EDITOR: Frank B. Stephenson, M.D., Metropolitan Building, Denver.

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## Editorial Comment

### CHANGE OF DATE OF ANNUAL MEETING.

After considerable correspondence between the Executive Committee and the Committee on Arrangements, whose prerogative it has been heretofore to set the date, it has been decided, for reasons considered worth while, to change the date of the 1921 annual meeting of the Colorado State Medical Society to October instead of September, the dates being the 5th, 6th and 7th. This makes the regular sessions begin on Wednesday, and the preliminary meeting of the House of Delegates will occur on Tuesday evening instead of the usual Monday evening. The committee on arrangements feels that in most respects the meeting will be more satisfactory on the later date and, aside from the fact that the previously arranged date has been published, there is probably no good reason why the committee's desire should not be approved. The matter of attendance of certain honor guests whom President Spencer has had in mind for the occasion has been left for his arrangement.

### TO THE MEMBERS OF THE COLORADO STATE MEDICAL SOCIETY:

If you desire a place on the program at the next annual meeting of our State Society, please send the title of your paper at once to Doctor George A. Moleen, Mack Block, Denver, Colorado, Chairman of the Committee on Scientific Work.

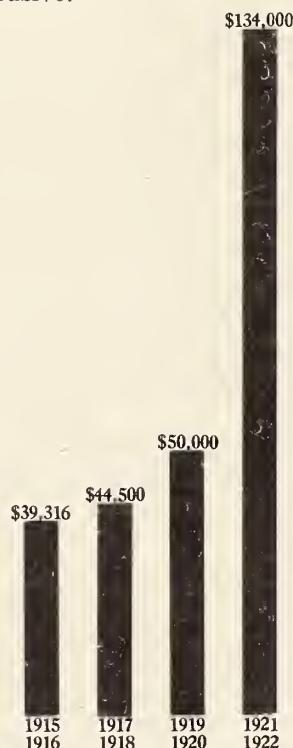
Last year the criticism was offered that the members of the State Society should have been asked by letter to take a place on the program. As you realize this is a big undertaking for the chairman of any committee and matters will be greatly simplified if you will write stating the title of your paper. If you will begin to prepare the paper now for the State Society meeting you will have it ready for the meeting and you will thus give your State Society and especially the Committee on Scientific Work an opportunity to prepare an excellent program.

The program should represent all sections of the state, and unless members from all sections of the state voluntarily offer papers, it will be impossible for the program committee to secure the necessary number.

FRANK R. SPENCER.

### STATE BOARD OF HEALTH NOTES.

The graph represents the increase in appropriation for the State Board of Health from 1915 to 1922 inclusive.



The high column is largely due to appropriations made for the purpose of combating venereal disease and the ten thousand dollars appropriated for a state laboratory. "Tis a sad tale, mates"; with but one exception, nothing in this column represents any increase in salary for employees of the State Board of Health.

COLORADO STATE BOARD OF HEALTH,  
J. W. M.

### HOTEL RESERVATIONS AT BOSTON.

The Local Committee on Hotels, Dr. John T. Bottomley, Chairman, Boston Medical Library, 8 The Fenway, Boston 17, Massachusetts, offers to assist members in securing hotel reservations. In addressing the committee, be sure to state the number in your party, including yourself, how many rooms are desired and whether with or without bath, also the total daily charge you are ready to pay. If, after having secured a reservation, it is impossible to attend the session, the hotel committee should be advised promptly in order that surrendered reservations may be reassigned.—J. A. M. A.

### ROUTES AND RATES TO BOSTON.

If special rates to the convention of the American Medical Association are as unsatisfactory over the country generally as they are for Colorado the chances are that the attendance at the Boston meeting will be appreciably less than it ought to be with fair rate concessions. The railroads seem to be between the devil and the deep sea, as between high rates and little traffic (the devil) and low rates with considerable traffic (the deep sea). Perhaps the blame does not rest so much upon them as upon the former Kaiser. At any rate the doctors of Colorado have a right to feel indignant when they consider how great a part of the cost of attending the meeting consists of traveling expense. The special rates authorized for this meeting are unsatisfactory; the time limit is too short and the privilege of using diverse routes coming and going is not given. It would seem that if the railroads had properly canvassed the situation they would have realized that those physicians who have to travel a long distance to get to Boston would wish to take the opportunity which such a trip should offer, of stopping off at clinic centers and perhaps even making a wide circle, adding to their attendance at Boston a general sight seeing or post-graduate tour. Besides the objections stated, the matter of having to obtain a certificate of identification before purchasing a ticket and having to validate the ticket before returning is to say the least considerable of an annoyance. As to regular tourists' rates going East the railroads consulted are unanimous in the opinion that such rates will exist about June 1, but they can only give the approximate rates and have not yet received official authority for them. These rates, whatever they may be, will also require returning by the same route over which the going coupon is used. According to one railroad's statement, this rate from Denver will be approximately \$147.94. The only way to take a circuitous route is to pay full regular fare to Boston and return, using a round trip ticket, the only advantage of which is unlimited stopover privileges in both directions.

The regular one way fare, including tax, is \$79.89. The special A. M. A. round trip rate direct, by the way of Albany, is approximately \$123.76; taking in New York City it is \$130.09. The lower berth rate, including tax, is \$22.68, upper berth is \$18.14, drawing room \$79.38, compartment \$63.99 (all one way).

The identification plan includes dependent members of one's family. A certificate must be obtained from the Secretary of the American Medical Association before tickets are purchasable. The State Secretary has just received twenty-five of these certificates, signed by Dr. Alexander Craig, which he will give out as applied for.

For the benefit of those who intend to go and have not yet chosen their route the railroads were requested to submit to the editor their time table, connections and general itineraries and the gist of their replies is printed below:

### Atchison, Topeka and Santa Fe.

Lv. Denver	8:45 a.m.	7:30 p.m.
Lv. Colo. Sprgs.	11:20 a.m.	10:10 a.m.
Lv. Pueblo	1:05 p.m.	11:30 p.m.
Ar. Chicago	9:20 a.m.	8:30 p.m. Dearborn & Polk St. Sta.

### Grand Trunk.

Lv. Chicago	11:15 p.m.	5:00 p.m. Dearborn & Polk St. Sta.
Ar. Boston	7:10 p.m.	7:38 a.m.

### M. C.

Lv. Chicago	12:05 a.m.	10:30 a.m. Pk. R. Sta.
Ar. Boston	6:05 a.m.	2:55 p.m.

### N. Y. C.

Lv. Chicago	11:15 p.m.	10:30 a.m. La Salle St. Sta.
Ar. Boston	7:15 a.m.	2:55 p.m.

Trains shown carry through sleepers to Chicago and stop for meals at Harvey Dining Rooms between Denver and Kansas City; they have dining car service between Kansas City and Chicago.

A. A. Ott, City Passenger Agent, 304 U. S. National Bank Building, Denver.

### Chicago, Burlington and Quincy.

(Burlington Route).

The present train schedules from Denver, via C. B. & Q. to Chicago, N. Y. C. Lines to Albany, B. & A. to Boston, are as follows:

Lv. Denver	9:00 a.m.	9:45 p.m.
Ar. Chicago	4:00 p.m.	7:00 a.m.
Lv. Chicago	5:30 p.m.	8:45 a.m.
Ar. Boston	8:35 p.m.	10:55 a.m.

Only change of cars is at Chicago.

In addition to this, passengers desiring to do so could leave Denver on No. 6, the lounge car train, at 2:45 p. m., arrive in Chicago 9:30 p. m. next day, connecting with N. Y. C. train leaving Chicago at 11:00 p. m., arriving at Buffalo 3:50 p. m. next day, leaving Buffalo 10:15 p. m., arriving Boston 10:55 a. m. next morning. Required change of cars at Buffalo. S. R. Drury General Agent, Phone Main 4641, Denver.

### Chicago, Rock Island and Pacific.

Via New York Central From Chicago.

Leave Denver—		
9:25 a.m.	01:00 p.m.	10:00 p.m.
Arrive Chicago—		
4:30 p.m. nxt. day	7:20 a.m. 2d day	7:20 a.m. 2d day
Leave Chicago—		
5:30 p.m. nxt. day	8:25 a.m.	12:40 noon
Arrive Boston—		
8:35 p.m. 2d day	10:55 a.m. 3d day	11:55 a.m. 3d day

Two night service Denver to Boston.

Excess fare on Twentieth Century Limited \$9.60.

Union depot connections at both Chicago and Englewood Stations with all New York Central trains.

All trains are of modern steel equipment, and provide dining car service on the a la carte plan for all meals.

Phone M. L. Mowry, district passenger agent, 409 U. S. National Bank building, Denver, who will secure reservations through, and deliver tickets at your office. Phones Main 4411 or 4412.

### Union Pacific.

U. P. No. 14 U. P. No. 12 U. P. No. 16

Lv. Denver	10:30 a.m.	2:40 p.m.	11:30 p.m.
Ar. Chicago via			

C. & N. W.	4:00 p.m.	9:30 p.m.	8:00 a.m.
All above trains carry through standard sleepers, dining cars and observation cars. They all arrive at Chicago Northwestern Terminal.			

	N. Y. C.	N. Y. C.	N. Y. C.
	No. 22	No. 28	No. 6

Lv. Chicago	5:30 p.m.	11:15 p.m.	10:25 a.m.
Ar. Boston via			

B. & A.	5:25 p.m.	7:15 a.m.	11:55 a.m.
		U. P. No. 102	U. P. No. 104

Lv. Denver	12:50 p.m.	9:00 p.m.
Ar. St. Louis via Wabash	6:15 p.m.	7:00 p.m.

(Above trains carry through sleeping cars Denver to St. Louis. Dining cars for all meals. No. 102 has observation car.)



	Big Four No. 4	Big Four No. 18
Lv. St. Louis.....	10:00 p. m.	2:00 p. m.
Ar. Boston via B. & A.....	10:55 a. m.	8:35 p. m.
D. R. Griggs, city passenger agent, 212 Denham Building, Denver.		

**Chicago Connections.****Grand Trunk.**

Tickets reading via the Grand Trunk will permit of stopovers at all points en route, and may be so routed as to permit using either boat or rail, at option of passenger, between Detroit and Buffalo and up the St. Lawrence River, Toronto to Montreal. This line is double track Chicago to Montreal, and reaches many points of interest, such as Detroit, Niagara Falls, Toronto, Ottawa, Montreal, Quebec, and others, where stopovers may be had if desired. Although making the trip to Boston via Montreal takes in a larger territory, it costs no more. Train No. 14, "The International Limited," leaving Chicago at 5:00 p. m. daily, carries standard sleepers, diner and observation car through to Montreal. There will be a specially conducted tour for the members of the American Medical Association attending this convention, which will leave Chicago on train No. 14, June 2nd, visiting Niagara Falls, Toronto, Montreal, a trip to Quebec and return on the St. Lawrence River steamer, with a day at Quebec, and a side trip to St. Anne de Beaupré to visit the famous Catholic Shrine and Montmorency Falls. Boston will be reached on Monday evening, the 6th. Special service will be operated from Boston the last afternoon of the 10th by way of New York City, Atlantic City and Washington, spending a day at each of these places, arriving at Chicago Wednesday morning, June 15th. Those who wish, may return via direct lines to Chicago on special train leaving Boston at 7:00 p. m. June 10th. L. E. Ayer, general agent, 335 Railway Exchange building, Kansas City, Mo.

**New York Central.**

Lv. Chicago....	8:25 a. m.	Ar. Boston....	10:55 a. m.
Lv. Chicago....	10:25 a. m.	Ar. Boston....	11:55 a. m.
Lv. Chicago....	10:30 a. m.	Ar. Boston....	2:55 p. m.
Lv. Chicago....	12:40 p. m.	Ar. Boston....	11:55 a. m.
Lv. Chicago....	1:30 p. m.	Ar. Boston....	6:20 p. m.
Lv. Chicago....	5:30 p. m.	Ar. Boston....	8:35 p. m.

**Michigan Central.**

Lv. Chicago....	9:05 a. m.	Ar. Boston....	11:55 a. m.
Lv. Chicago....	10:30 a. m.	Ar. Boston....	2:55 p. m.
Lv. Chicago....	8:00 p. m.	Ar. Boston....	10:50 p. m.

**St. Louis Connections—Big Four.**

Lv. St. Louis....	2:00 p. m.	Ar. Boston....	8:35 p. m.
Lv. St. Louis....	10:00 p. m.	Ar. Boston....	10:55 a. m.
(2d morning)			

Erwin Tears, general agent, passenger traffic department, 313 Denham Building, Denver.

**CASE REPORTS.**

Reports of cases have a peculiar interest analogous to that of the mystery story, the reader's ingenuity in diagnosis being brought into play as the account progresses. A further reason why they attract special attention is that they are in line with the habit of thought which functions in the doctor's every day work, and therefore are followed with that ease which habit and repetition induce.

A number of medical societies are now furnishing to Colorado Medicine reports of more or less unusual or puzzling cases, which are discussed at their meetings. They should not be overlooked by the reader.

## Original Articles

**STENOSIS OF THE ESOPHAGUS.\*****T. E. CARMODY, M.D., DENVER.**

Except as a matter of personal interest and investigation, there is very little excuse for the presentation of a paper of this character before this body. However, it is with the hope that your attention may be called to the various points contained in previously published contributions, and without claim to anything particularly original, that I shall occupy your time.

**EMBRYOLOGY**—The esophagus is developed from the short piece, vorderdarm, between the pharynx and the stomach. During the fourth week it begins to lengthen out, and by the end of the fifth has become a cylindrical tube of considerable length. As regards its further history, we have little information. Minot observed that during the fourth and sixth month it has usually four well-marked ridges formed by its mucous membrane, and that below the larynx these ridges are so arranged as to give the cavity of the esophagus, as seen in cross-sections, the outline of a Greek cross, which was observed by Kolliker. At four months the inner circular coat and the outer longitudinal coat are clearly differentiated.

The epithelium of the esophagus at four months consists of numerous layers of clear cells, but at certain points some of the cells at the free surface have a granular protoplasmatic appearance, a somewhat cylindrical form, and bear a crown of cilia. The presence of cilia in the human embryo of eighteen to thirty-two weeks was discovered by E. Neuman.

Baifour records that in shark embryos the cavity of the esophagus is entirely obliterated about the time the fourth gill-cleft is formed, and so remains for a long time; the obliteration is effected by the growth of the entodermal epithelium. That the entodermal canal in teleost embryos is for a time a solid cord, has already been stated, and accordingly in them we find the esophagus without a lumen during certain stages. De Meuron states that the obliteration can be observed in anura just after the larva hatches; in lizards, and in the chick embryo of five and one-half days. In lizards the obliteration is complete. W. Opitz states that part of the lumen is closed in the human embryo, as in the shark and other lower forms, and concludes from that fact that the amniotic fluid cannot be swallowed by the fetus.

**ANATOMY**—The esophagus, or gullet, is a muscular canal about 23 cm. in length, its walls continuous above with the pharynx, and below blending with those of the stomach. Its upper end is opposite the upper border of the cricoid cartilage, or opposite the intervertebral disk between the fifth and sixth vertebrae. It descends along the front of the spine through the

\*Read at the annual meeting of the Colorado State Medical Society, September 7, 8, 9, 1920.



posterior mediastinum, passes through the diaphragm and, entering the abdomen, terminates at the cardiac orifice of the stomach opposite the ninth dorsal vertebra. The general direction is vertical, but it presents three slight curvatures in its course. At its commencement it is placed in the median line, but inclines to the left to the root of the neck, where it gradually passes to the median line to deviate toward the left and anteriorly to its opening in the diaphragm. It also presents an anterior-posterior flexure corresponding to the curvature of the cervical and thoracic portions of the spine.

The esophagus is the narrowest part of the alimentary canal, being most constricted at its beginning and where it passes through the diaphragm. The above description, while correct for most cases, may not universally apply, as in some instances we are able to obtain a view from the opening almost to the cardia in a straight line, while in others the variation from the above may be slightly toward the more tortuous.

Killian first called attention to the fact that the tonic sphincter-like occlusion of the superior extremity of the esophagus is confined to the region of the lower border of the cricoid cartilage where the lowest transverse bundle of fibers of the inferior constrictor of the pharynx forms a lip-shaped prominence on the posterior wall. An idea of the sphincter-like action of this muscle can only be obtained endoscopically in the living subject. It represents the lower limit of the pharynx and the upper end of the esophagus and is supported in front by the cricoid plate and posteriorly by the vertebral column, to which it is attached by the pretracheal and prevertebral fascia. Laterally we find the thyroid gland.

Mosher calls attention to the thinning of the fibers at the lower border, leaving a triangular area below this fold, and further to the similarity between the projection of this inferior constrictor and the superior constrictor projection in the nasopharynx, forming Passavant's fold.

While the cervical portion lies close to the spine as does also the superior thoracic portion in its close relation to the posterior mediastinum, the lower thoracic passes in front of the aorta, which separates it from the spine.

**STRUCTURE**—Three coats are described, being an external muscular, middle, or areolar, and internal, or mucous.

The muscular coat is composed of two planes of fibers of considerable thickness, an external longitudinal and an internal circular. The longitudinal fibers are arranged at the upper end in three bundles. The anterior bundle is attached to the cricoid plate. The lateral bundles are continuous with the fibers of the inferior constrictor; as they descend they blend together and form a uniform layer, completely covering the tube.

The circular fibers are continuous with those of the inferior constrictor, while their direction is transverse in the upper and lower portions of the tube. They run obliquely in the central portion. Cunningham describes accessory strips

of muscle fibers passing between the esophagus and pleura where it covers the thoracic aorta or the root of the left bronchus, the back of the pericardium, or more rarely the corner of the mediastinum, and still more rarely, other accessory fibers. The muscular fibers in the upper part of the esophagus are of a red color and consist chiefly of the striped variety, but lower down are entirely non-striped fibers. The areolar coat is very thin and simply connects the mucous and muscular coats. The mucous coat is thick and of a reddish color in the upper portion, fading to a pale pink below. It is disposed in longitudinal folds which disappear on distension of the tube. Its surface is studded with minute papillae and is covered with a thick layer of stratified pavement epithelium. Beneath the mucous and next to the areolar coat is a layer of longitudinally arranged, non-striped muscular fibers. Very few of these are found at the beginning, but in the lower part of the tube they are found in large numbers.

Small compound racemose glands are found throughout the whole length of the tube in the submucous tissue, opening by long ducts. They are especially numerous around the cardiac opening.

**BLOOD SUPPLY**—Very little can be found in our text books on anatomy, but the upper portion is supplied by branches from the ascending pharyngeal vessels, which anastomose with branches received from the aorta. These latter branches, which apparently are quite numerous, supply the middle portion and anastomose with the gastric artery, which supplies the lower end and which passes to the left side of the cardiac orifice.

**LYMPHATICS**—The lymphatics of the esophagus form a plexus around the tube, traverse the glands of the posterior mediastinum, and communicate with the deep lymphatics at the root of the lungs, terminating in the thoracic duct.

**DISTENSIBILITY**—All constrictions of the esophagus are dilatable. The superior or cricoid is less so than the others. The normal esophageal wall has been proved by Jackson to stretch two centimeters without rupture. The lumen of the esophagus increases on inspiration and decreases on expiration. This is found to be of distinct advantage in passing tubes.

**MOBILITY**—The esophagus seems to be comparatively fixed as far as lateral movements are concerned, at its upper end and where it passes through the diaphragm. Jackson has proved that the upper portion may be moved several centimeters and many of us have observed wide movement under complete anesthesia.

**LENGTH**—The length of the esophagus as stated before, is about 23 cm. but this is variously given by different authors—depending upon the age of the patient, 7 to 25 cm. It seems that these measurements are not as important as the measurement from the teeth to the bifurcation, and from the teeth to the cardia, as the latter measurements mean more to the operator. The distance from the incisors to the bifurcation of the trachea is from 24 to



26 cm. in the adult, the lower figure being for women and the higher for men. Mosher gives the length of the esophagus from the incisor teeth to the cardia the wide variation of 36 to 59 cm. in men, and 32 to 41 cm. in women.

The following are Mosher's tables compiled from Stark:

#### Length of the Esophagus at Different Ages.

	Teeth to Cricoid.	Teeth to Bifurcation.
Birth .....	7 cm. (2¾ in.)	12 cm. (4¾ in.)
1 year .....	10 cm. (4 in.)	14 cm. (5½ in.)
2 years .....	10 cm. (4 in.)	15 cm. (6 in.)
5 years .....	10 cm. (4 in.)	17 cm. (6¾ in.)
10 years .....	10 cm. (4 in.)	18 cm. (7 in.)
15 years .....	14 cm. (5½ in.)	23 cm. (9 in.)
Adult .....	15 cm. (6 in.)	26 cm. (10¼ in.)

#### Teeth to Cardia.

18 cm. (6¾ in.)
22 cm. (8¾ in.)
23 cm. (9 in.)
26 cm. (10¼ in.)
28 cm. (11 in.)
33 cm. (13 in.)
40 cm. (15¾ in.)

#### Length of Whole Esophagus.

10 cm. (4 in.)
12 cm. (4¾ in.)
12 cm. (5½ in.)
16 cm. (6¾ in.)
18 cm. (7 in.)
19 cm. (7½ in.)
25 cm. (10 in.)

For memorizing the distance from teeth to the cardia at different ages, the following approximate figures are given (Stark):

Birth .....	7 in.
5 years .....	10 in.
15 years .....	13 in.
25 years .....	16 in.

Add three inches for every five years.

The esophagus begins six inches from the incisor teeth, back of the cricoid cartilage at the sixth cervical vertebra. It is ten inches long and goes through the diaphragm at the tenth thoracic vertebra, sixteen inches from the teeth. It is crossed by the arch of the aorta back of the middle of the first piece of the sternum, ten inches from the teeth. For practical purposes the measurements to be remembered in connection with it are, then, 6 and 10.

**DIAMETER**—While the esophagus is smaller in diameter than any other portion of the alimentary canal, it varies in size in different portions, being smallest at the upper opening. It has, however, three other points of constriction, the second being where it passes behind the arch of the aorta when it is compressed between the aorta and the spine; third, where it passes behind the left bronchus at the level of the fifth thoracic vertebra, and last, where it passes through the diaphragm. Not being supplied with cartilaginous rings, like the trachea, it collapses on itself, leaving its smallest diameter from before, backward, and viewed from above simply presents a slit-like opening.

#### Diameters of the Esophagus at the Four Constrictions.

Constriction, cricoid; diameter, transverse 23 mm. (1 in.) anteroposterior 17 mm. (¾ in.); vertebra, sixth cervical.

Constriction, aortic; diameter, transverse 24 mm. (1 in.), anteroposterior 19 mm. (¾ in.); vertebra, fourth thoracic.

Constriction, left bronchus; diameter, transverse 23 mm. (1 in.), anteroposterior 17 mm. (¾ in.); vertebra, fifth thoracic.

Constriction, diaphragm; diameter, transverse 23 mm. (1 in.); vertebra, tenth thoracic.

#### Diameter of Tubes for Different Ages.

To 8 years .....	9 mm.
From 9 to 15 years.....	11 mm.
From 17 years.....	12 to 14 mm.
Adults .....	14 mm. (Average)

**ANOMALIES.**—The most frequent malformation of the esophagus is obliteration. Van Cnyck in 1824 delivered a child which died on the third day from malnutrition. At post-mortem it was found that the inferior two inches of the esophagus was merely a ligamentous cord. Poro describes a case of congenital obliteration of the esophagus which ended in a cecal pouch about one inch below the inferior portion of the glottis and from this point to the stomach measured only one inch. There was a communication with the trachea. Brentano describes the case of an infant which died ten days after birth, whose esophagus was divided into two portions, one opening into a bronchus and the other into a cul-de-sac. A case of duplication is described by Blasius. Grashing saw a case of dilatation resembling a bird's crop.

**STENOSIS.**—Strictures of the esophagus, like foreign bodies, are found most frequently in the upper third. The theory of Jackson that this is due to spasm seems the most reasonable. Our finding a greater number of carcinomas in the lower portion may be due to the fact that the irritation, if such be the cause, is not so intense and extends over a long time.

The passing of the esophagoscope in the case of stricture is not different from the mode of employment in cases of foreign bodies.

The normal esophagus appears through the esophagoscope to be bright red or pink, varying in different individuals, but appearing lighter on good illumination than when the tube is poorly lighted. When the membrane has been traumatized, the color varies from deep red to grayish white, depending on whether the membrane has become edematous. The appearance will vary somewhat according to the size of the tube employed; with a small tube, on account of the folds of mucous membrane, it will be somewhat darker than when the large tube is used, which stretches and blanches the mucous membrane. While we do not fear passing over and beyond a foreign body with a large tube, we must be extremely careful, in the case of stricture, that the large tube does not dilate the esophagus to such an extent as to produce rupture. The tube should always, where possible, be passed so that the examiner can see ahead of it and be able to see the lumen before advancing the tube. Ballooning the esophagus by means of a rubber bulb attached to the Mosher tube has been found very valuable in my hands.

As interference with physiological action is more important in making a diagnosis in case of stricture than in foreign body, a few words as to the physiology of the esophagus will not be amiss. The office of the esophagus is to carry food from the buccopharyngeal cavity to the stomach by the act of swallowing. This act is divided into two phases, the buccopharyngeal and the esophageal. The first is voluntary and consists in movements of the tongue, floor of the mouth, soft palate, the hyoid bone, the larynx, and of contraction of the pharyngeal constrictors; while the esophageal, also a peristalsis, is an involuntary act. The time taken for the first phase is estimated at three-fourths



of a second, while the second is estimated at six seconds. It is stated by Mosher and others that peristalsis is three times as rapid in the striated third of the esophagus as in the lower two-thirds. This is important as throwing light on the slow progress of the bismuth bolus used in connection with fluoroscopy in these cases, and the repeated attempts of the patient to start another peristaltic wave.

Stenosis of the esophagus includes many of the diseased conditions of this organ. We may classify esophageal stenosis as primary and secondary. Primary includes inflammatory thickenings due to infection or trauma, or edema following either.

Secondary stenosis includes cicatricial contraction following ulcers or trauma, new growths, either intrinsic or extrinsic, pressure from without by new growths, hypertrophies, aneurism, or abscess.

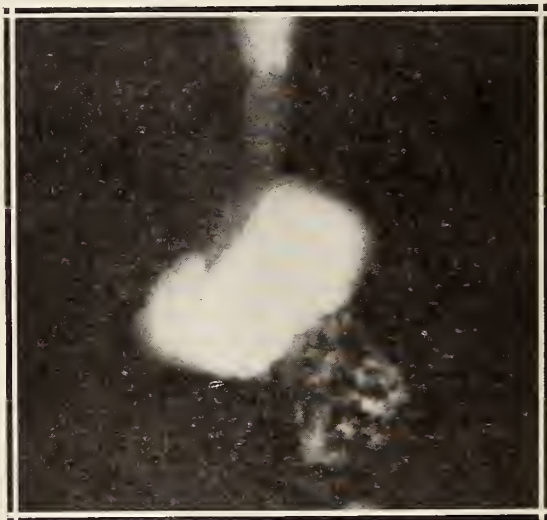
Primary stenosis may be simulated by foreign body and without history may be difficult to diagnose. Contrary to foreign body, the diagnosis of stenosis is usually made before the patient consults an endoscopist. Foreign bodies are usually unsuspected while the history is usually sufficient to make a diagnosis of stenosis, and in many cases an attempt to pass a stomach tube has already been made.

In all other conditions with which this paper deals, endoscopic examination, if performed early, may be of great value, both for purposes of diagnosis and treatment.

Fluoroscopic examination may be used to locate position or extent before endoscopic methods are used, or during the passage of the tube. If used before, the barium meal is used in conjunction; but if used while passing the tube, either dilators which obstruct the light, or



Stricture, carcinoma above and spasm below bolus. (Barium). Skiagram by W. W. Wasson.



Stricture at cardia due to syphilis. Skiagram loaned by H. P. Brandenburg.



Stricture at lower end with dilatation from barium meal. Skiagram by W. W. Wasson.

probes can be used to advantage. The great majority of our cases do not require this help, but it is of value in many, when it is not absolutely necessary.

Resort to dilatation, once the diagnosis is made, depends upon whether the condition is one which will be improved by mechanical dilatation, or whether other means are to be used.

Those cases without anatomical change but which have troublesome spasms may require great patience and constant observation, as there may be a change not visible to the eye. Another condition which may give confusing symptoms is esophageal varix. Observation of this latter may call attention to abdominal organs, especially the spleen and liver, disease of which may interfere with circulation in the lower part of the esophagus.



Simple annular constrictions are easily dilated, if not of too long standing, by Jackson's flexible dilators. Constrictions of some length may require the use of Mosher's dilator on some portions and the use of Plummer's graduated dilators. Dilating through the esophagus is most satisfactory and is less dangerous.

Malignant tumors of the esophagus are treated successfully by radium applied through the esophagoscope, for in no other way can we be absolutely sure of reaching the diseased area, not even by using the fluoroscope.

Deep roentgen rays are of value in controlling pain. Dilatation of malignant strictures should not be done. However, one may have a simple cicatricial stricture in the same esophagus, such as the author has seen, and this may be dilated without harm. Any unnecessary manipulation of a malignancy is inadvisable because of the danger of producing metastasis.

**Case I.**—W. O. G., a dentist who had been a patient for years, consulted me May 21, 1919, on account of a difficulty in swallowing which had extended over a period of several weeks.

He came to Colorado for pulmonary tuberculosis ten years ago but had apparently recovered and was able to follow his profession for the last eight years. He had been a very heavy drinker for years. Wassermann test as well as any history of lues was negative.

I esophagoscoped him under ether May 26, 1919, and found an ulcerated area 1 by 2 cm. on the anterior and right wall at the cricoid constriction which appeared to be a simple irritative ulcer. Another ulcer or several ulcers surrounded by cicatricial tissue showed a beginning about 5 cm. below the aortic constriction. The tube, a Mosher No. 3, was passed by the upper ulceration which was painted with 3 percent tincture of iodine, with little difficulty, but could not pass the second, although the smallest Jackson flexible bougie passed easily. While this did not appear to be of the same character as the superior, I did not feel justified in removing a section and contented myself with thorough swabbing with iodine, and returned the patient to bed.

The patient was greatly relieved for four days when spasms returned with pain. Dilatation of the upper constriction at intervals relieved, but after dilating the lower two or three times it proved too painful and was not persisted in.

Under ether, August 2nd, he was esophagoscoped and the upper ulcer was found entirely healed while some healing had taken place in the lower with resulting scar tissue, to such an extent that the smallest Jackson dilator would not pass. Gastrotomy was advised but consultant disagreed.

Reaction was severe for three days, after which deep roentgen rays were used at intervals to relieve spasms and pain.

Shortly after this he consulted a surgeon who promised to use radium, but for some reason did not use it. Radium was subsequently used but too late to be of value. It was applied by means of a stiff bougie with the aid of the

fluoroscope, but as to dosage and time I am not informed.

X-ray Report by Frank B. Stephenson, M.D.:

"Report on the case of Dr. W. O. G. referred to me May 21, for x-ray examination of the esophagus: The first several boluses of viscid medium proceeded to the cardiac orifice in a normal manner where a temporary obstruction occurred, which was relieved by gradual expulsive efforts of the esophagus.

"Following this the patient experienced a



**Case 1—Esophageal carcinoma with reflex spasm at lower end of esophagus. Skiagram by F. B. Stephenson.**



**Case 1—Dilatation above stricture; Barium meal. Skiagram by F. B. Stephenson.**



sense of discomfort beneath the sternum, and part of the medium swallowed subsequently collected in the esophagus above an apparent constriction, situated at about the level of the bifurcation of the trachea. The constriction was not ring-like, but gave more the appearance of an organic defect. The medium was present and the picture unchanged for over half an hour. A two-hour plate showed the esophagus clear with no remnants of barium present.

"This phenomenon of the apparently free passage of the first few mouthfuls, with spasm occurring subsequently, was observed at two examinations. There was no evidence of extrinsic pressure.

"The diagnosis from an x-ray point of view would be in favor of an ulcer or an organic stricture rather than reflex spasm."



Case 1—Showing increase of growth seven months later (between marks). Skiagram by F. B. Stephenson.

#### Autopsy Report by Phillip Hillkowitz, M.D.:

"Autopsy held on the body of Dr. W. O. G. Body greatly emaciated. Muscular development poor. Pericardium slightly adherent to heart. Several whitish spots on epicardium. Nothing noteworthy in walls or valves. Left lung adherent to diaphragm. A calcareous nodule the size of a hazel nut, in the axillary line of the upper lobe. Peribronchial lymph nodes enlarged. Esophagus shows scar tissue anterior and right lateral wall at level of cricoid cartilage, and ulceration of posterior wall together with a circular ring of hard tissue encircling the tube about two-thirds of its circumference anteriorly to an extent of 3 cm. of its length, at a level 5 cm. below transverse arch of aorta. Nothing noteworthy in stomach or intestine. Kidneys pale on section. Spleen is converted entirely into a soft putrid mass.

"Microscopic examination of growth in esophagus reveals a scirrhus carcinoma.

"Pathologic Findings: Adhesive pericarditis. Healed tuberculosis in left upper lobe. Tuberculous infiltration and cavity formation in right upper lobe. Scirrhus carcinoma of esophagus in middle portion. Necrosis of spleen. Chronic parenchymatous nephritis.

"Cause of death: Carcinoma of esophagus. Necrosis of spleen."

Case II. Seen on author's service in Denver City and County hospital.

History: Constant loss of weight for last three months, since tonsils were removed by a general surgeon—forty pounds in all. Since operation has not been free from pain in right tonsillar fossa. Pain has been especially severe on swallowing but food has reached the stomach without difficulty.



Case 2—Stricture, carcinoma, opposite bifurcation with dilatation above and below. Skiagram by W. W. Wasson.

A diagnosis of tuberculosis was made and an examination of the larynx asked for. Examination revealed a mass in the region of the lower lobe of the right tonsil and base of tongue, occluding the superior aperture of the larynx, which prevented a good view of the larynx with mirror. Cervical lymph nodes slightly enlarged. Clinical diagnosis of carcinoma made, although Wassermann was positive. Examination of section removed was made by Dr. Helen Craig. Carcinoma of prickle cell type reported.

Collapse and death took place within forty-eight hours. Autopsy by Dr. E. R. Mugrage showed carcinoma of the base of the tongue and right wall of the pharynx, extending into the esophagus which was only slightly constricted.

Case III. Seen in consultation with Dr. Danahey at St. Luke's Hospital. A pale emaciated woman of forty-five, difficult swallowing and regurgitation at times for last three or four weeks. Examination under light ether anesthesia with Mosher No. 4 esophagoscope re-



vealed small mass immediately above the cardia with only slight contraction of tube.

Condition of patient did not permit treatment and death took place about sixty hours later.



**Case 3—Marked constriction partly due to involvement of lymph nodes raising pressure and partly due to involvement of esophageal wall (carcinoma). Skiagram by H. P. Brandenburg.**

Autopsy report by Dr. E. R. Murgage: Carcinoma of esophagus with metastatic mass in cardiac end of stomach.

Dr. L. Frank, who saw this patient four months previously, told me that all symptoms were then referred to the stomach. X-ray examination revealed stenosis of the esophagus and through his kindness and the assistance of Dr. W. W. Wasson, Roentgenologist, I am able to show the slides. Dr. Frank advised gastrotomy but operation was refused.

#### DISCUSSION.

**J. N. Hall, Denver:** As to the occurrence of ulcer, of which the doctor has spoken, I think there is no room for any question whatever. I think that out of one thousand ulcers, it will be found that perhaps one percent occur in the lower part of the esophagus. There is no room for any question in my mind that a very large part of the cancers develop from such an ulcer.

**Jos. C. Beck, Chicago:** I would like to speak on this subject because it is a very important one and one that interests us. Dr. Carmody merely touched upon the work that Mosher has recently done, and I want to emphasize this: that Mosher's specimens which were recently shown in Harvard were those of infants, young children, showing the constriction in the portion of the esophagus as it passed through the diaphragm, and showing the liver, how it constricts that portion of the esophagus, and thus predisposes to irritation which continues through life. This constriction is particularly marked. It also gives rise to the thought that because irritating substances would lodge there, that would be the place where we would look for strictures. There is one condition the doctor did not mention and emphasize, and that is functional stricture, functional stricture of the esophagus in which there no lesion at all, which is very persistent and very difficult to cure or do anything with.

Speaking of the therapy of this case, I think nothing has served me better than a tube passed into the stomach, at the end of which there is a rubber bag. Distend that to quite a marked degree until it pains, and leave it for fifteen or

twenty minutes, repeating a half a dozen times—this has served quite a number of my cases.

On the subject of carcinoma, I shall not talk about it now except to say that as hopeless as that subject is, in that portion of the body, the carcinoma of the esophagus, I think by the aid of radium needles introduced into the tumor we can do a great deal in getting results from the action of the radium, and it will relieve this condition of starvation because it is easier than a gastrotomy.

I think these two advantages we might speak of, the use of the tube and the introduction of radium, and allowing them to remain in there, as I will speak of later, and then putting in a flexible or a rubber tube, and feeding the patient by this method. I have seen a good many cases of esophageal strictures in which the unscientific use of tubes for diagnosis (and the esophagus will not stand a great deal of trauma) produced injuries which resulted in permanent constriction. And the last point is, cocaineizing in the esophagus has no place. I have seen several cases of poisoning in the esophagus where the operator felt that he must cocaineize before passing the tube.

**William V. Mullin, Colorado Springs:** I am sorry that Dr. Carmody didn't have time to say a word more about the technique and carrying out his treatment. I think the treatment of these cases, at least in my limited experience, has been unsatisfactory in respect to getting the co-operation of the parents, and it seems to me that a word might be said along that line before a body made up mostly of general practitioners, urging them to give their co-operation in educating the parents on the necessity of bringing these children back for constant treatment. It has been my misfortune to have gotten well started on some of these strictures, having the children swallowing their food and gaining, and then entirely lose track of the patients for a time because they disliked having an esophagoscope and dilators passed; and when such patients came back for further treatment, the stricture has closed and you have to start all over.

Dr. Beck spoke of functional spasm. Patterson of London regards such things as a forerunner to malignancy, and I wonder if Dr. Beck found that to be so in any of his cases. Dr. Potts of Omaha had promised to read a paper before the Midwestern Section of the Tri-Ological last year, but was unable to get to the meeting on account of influenza. His subject was "Functional Spasm of the Esophagus—A Sexual Neurosis." One case I had which was very annoying was of a young woman about a week after marriage. That was the first time it was ever brought to my notice; and I wonder whether Dr. Beck or Dr. Carmody ever found that as an etiologic factor.

**R. E. Holmes, Cañon City:** Dr. Carmody has presented a very good paper on an exceedingly interesting subject, and it is to be regretted that time was not sufficient to take up one other phase of it, and that is, those cases of luetic etiology. I believe that a large number of cases that we meet with in adults have been caused by syphilis. Cases of stricture of the esophagus may be divided into two classes—those due to organic change and those due to a functional cause—and of organic changes in the cases which I have seen in the adult, a large percentage have been caused by syphilis. Just recently I discharged temporarily the case of a farmer forty-nine years of age, who lost forty pounds of weight in five months' time—perfectly negative history in every respect—one of those patients who tell you they never have been sick in their lives. The Wassermann test showed a very mild reaction, such a one as we often get in children in hereditary types of syphilis, yet in six weeks' treatment he cleared up perfectly, clinically, and so far as the x-ray examinations show, he is perfectly well. How long he will remain that way is a question. I hope Dr. Carmody may have the time to go into this feature in his closing.

**F. B. Stephenson, Denver:** In regard to the functional spasm: That gives a rather definite x-ray picture, because in the case of spasm right near the orifice of the stomach, the usual so-called cardiospasm, the shadow is apt to have a very small tapering off point, and when we see that we feel pretty sure it is a functional spasm, although we cannot be absolutely sure because an annular tumor might give us very much the same kind of a plate; but when the stricture gives a ragged appearance, no matter where in the esophagus it is situated, we interpret it as being due to organic change.

**Dr. Carmody, closing:** Dr. Hall speaks of ulcers in the lower esophagus. There is a possibility that a great many of these cases start there, carcinomas of the esophagus, and we find also ulcera-



tion in specific cases at this point. Mosher has brought out another point I was not able to touch upon in regard to many of these cases of congenital stenosis. Mosher claims that many of these have a congenital stenosis; also some of these cases Dr. Beck speaks of show this point also. As to functional stenosis, we find those cases, and they are very, very obstinate at times. I have never had any experience of the kind of cases Dr. Mullen speaks of, but I find some in those that have been married a long time, and it may be there is something in that that might have some bearing. At least, they are very hard to see, and it seems that the cases of functional stenosis are the ones that disappear more often than the cases of organic stricture. The organic cases will usually come back, I find. However, there are some of them that come to a certain point and then they will disappear for months. There was one point I was unable to touch upon in the paper that I will mention here; and that is the dilatation of strictures due to carcinoma. It is not advisable to dilate a stricture if we have beginning carcinoma, but we do not always know. And as to the point Dr. Beck touched on, of passing the tube, in some cases, and producing trauma, you might do that in cases of carcinoma, but you must be careful; and in my first dilatation I always do it under an anesthetic for that reason, because if you have a great deal of movement of the patient you might do harm, no matter how successful you are in handling the tube. In some cases the stenosis is so tight and presents such a very small opening that the Jackson dilators are the best to use; then you can use either the Plummer dilator, or any other method you wish, but the dilatation should always take place first through the esophagoscope, so that you can see what you are doing; see where your stricture is, for frequently it is off to one side. The tube in the stomach that Dr. Beck speaks of I have used, although not mentioned in the paper, and in some cases I have used it with very good results after dilating, passing the tube and leaving it in place, especially in children, and feeding through it.

As to syphilis of the esophagus, stricture may be due, as I have mentioned in showing the slides, either to ulcers in the esophagus itself or to a gumma outside and to pressure on it. I am sorry not to have mentioned that at greater length. Another point I must mention—that is, we may have carcinoma in conjunction with syphilis. In one of these cases there is a possibility of this combination, although the patient gives 4 plus Wassermann and has been treated and is improving.

### **HYPERTROPHIC TUBERCULOSIS OF THE ILEOCECAL REGION; MEDICAL AND SURGICAL ASPECTS.\***

**A. S. TAUSSIG, M.D., AND O. M. SHERE, M.D., DENVER.**

For a long period the writers have been making a conjoined study of the different phases of intestinal tuberculosis. During this study we were particularly impressed by the more frequent occurrence of the chronic hypertrophic form of tuberculosis in the ileocecal region than is generally supposed. In reviewing the literature upon the subject we found that too little distinction is made between this form of the disease and the common ulcerative type of tuberculosis found in the intestinal canal. Because of the paucity of the literature and the frequency of the disease, we feel it timely to present this subject before you. It is our aim to clarify the symptomatology and elucidate the underlying pathology to the end that an earlier diagnosis may be made in some of these obscure conditions in the ileocecal region, which in turn will make possible the institution of early suitable

treatment so that patients thought to be incurable may possibly be cured.

#### **Pathology.**

Despite the fact that the ileocecal region is one of the most frequent sites of election for intestinal tuberculosis in general and the particular site for the hypertrophic form, but little has been written on the subject. From a historical viewpoint it is noteworthy that although attention was called to these conditions by Villemain in 1868, no further progress ensued and the field was entirely neglected until 1891, when the announcements from Billroth in Vienna and Hartmann and Pilliet in Paris were made that what had often passed as cancer of the cecum was really tuberculosis—not malignant at all, but equally capable of excision, with a better prospect of permanent relief. In fact Hartmann was the first to really classify the condition into ulcerative and hypertrophic forms. About seven years later, in 1898, Conrath collected seventy-nine cases from the literature and added five cases of his own, but upon carefully perusing his article we find that the two conditions, i. e., the ulcerative and hypertrophic forms, are dealt with rather indiscriminately, so much so that we cannot distinguish the individual characteristics of the two types. In fact what seemed to have occupied Conrath's mind at the time his thesis was written was the question of etiology. He was principally concerned in solving the problem, whether the process was a primary one or a disease secondary to some pre-existing tuberculosis elsewhere in the body, and, if primary, whether it was so in the mesenteric glands or in the alimentary canal. In other words, was the portal of infection in the mucosa or the serosa? After a good deal of discussion he could offer no definite conclusions. Somewhat later a lengthy polemic along the lines of the question propounded by Conrath was carried on between various pathologists and clinicians; Klebs and Leube, for instance, denying the occurrence of primary tuberculosis of the intestines, while Bollenger, Melchoir, Wyss and others have held the opposite view and proved their contention by thousands of autopsies coupled with an enormous clinical experience. Aside from this there is not a single monograph by either an English or an American writer on this particular topic. Noteworthy also is the fact that even the latest text-books on pathology ignore the hypertrophic form of the disease, limiting their discussion to the ulcerative type almost exclusively.

And yet from our own observations we venture to assert that this form of the disease has a distinct clinical entity and that its underlying pathology is as different from that of the ulcerative type of the disease as is the tubercular ulcer different from the typhoid type.

While we have no other definite proof, except clinical observation, we nevertheless feel inclined to believe that the hypertrophic form is usually primary in character. Its occurrence in children and young adults without any demonstrable lesions in the lungs would seem to support this view. Our assumption is that the tubercle bacilli pass through the intact wall of the intestine, usually the ileum, without leaving any trace of their passage, and en-

\*Read at the annual meeting of the Colorado State Medical Society, September 7, 8, 9, 1920.



ter the mesenteric and retroperitoneal lymph nodes, giving rise to symptoms of tuberculosis of these structures. It is of interest in this connection to note that Harte and Rabinowitch found the bovine type of tubercle bacillus in 83% of these primary cases of tuberculosis of the mesenteric nodes. In every case operated upon, we have never failed to find enlarged mesenteric glands showing typical tuberculosis in the various stages of the disease. The size of these glands varied from that of a split pea to a large walnut. We are not concerned at this time as to the etiology of the glandular involvement nor are we prepared to say anything definite about the portal of entry of the tubercle bacillus. We are merely stating that in our series of cases an adenitis of the mesenteric glands was found and that this hyperplasia was undoubtedly due to the tubercle bacillus. Whether or not these glands were the sequence of a previous bowel involvement or vice-versa, is a problem we have as yet not definitely solved. It will require a great deal more of experimental research to verify our hypothetic assumption and we prefer to leave this phase of the pathology for some future consideration. Suffice it to say, however, that in our opinion the etiology given for the ordinary ulcerative form of intestinal tuberculosis does not apply to this variety.

It is true that the ileocecal region is the site of predilection in this form of the disease which is also true of 85% of the other type of intestinal tuberculosis. The reasons for this are the anatomic and physiological make-up of this part of the intestinal canal and they correspond to the causes which have been advanced to explain the frequency of other inflammatory conditions in and around the appendix vermiformis. Particularly suggestive is the great vascularity of the cecum and its abundance of lymphoid tissue, at least in the young. The fact that at the ileocecal valve the mucosa changes from the villous formation of the small intestine to that of the colon, creating the established tendency to inflammation and hypertrophy at such borderlines, undoubtedly has some bearing.

Another predisposing cause for the selection of this region is the slowing down of the movement of the chyme, tending to stagnation, which causes irritation of the mucous membrane and prolonged retention of the bacilli, which have thus all the favorable conditions necessary for their development. The chemical composition of the intestinal contents also favors the predilection of the ileocecal region where the contents begin to be alkaline. Why the bacillus here tends to produce a hyperplasia with thickening of the intestinal wall rather than a tuberculous ulcer with thinning is still a much contested point. Some investigators hold that it is produced by attenuated bacilli of low virulence, which theory would support our contention that the condition is primary in the mesenteric glands. The inflammation found in the involved region is characterized by an extensive formation of small spheroidal cells, and fibrous tissue, with absence of giant cells. This is limited in the majority of instances to the submucous layer, less frequently to the muscular and sub-serous layers of the intestinal wall, the mucosa showing no

pathologic change whatsoever. Miliary tubercles, cheesy degeneration, and ulceration are conspicuous by their absence. The new tissue eventually forms a circumscribed annular thickening limited usually to the lower end of the ileum and cecum; this hyperplasia forming a well circumscribed tumor mass with more or less stenosis of the ileocecal valve. In some cases we see a rigid section of intestine with a much thickened wall merging gradually into the normal gut above and below, or there may be a number of tumors interrupted by a portion of intestine which is more or less normal in appearance to the naked eye. The external surface of the gut is usually covered with smooth serosa presenting in spots irregular masses of fat, some of which resemble the normal appendices epiploicae, while much seems to be mesenteric fat attached to the wall. The adipose deposits and even ingrowths are doubtless a part of the conservation effort, and supplement the more efficacious fibrous tissue which is formed in excess here, as is the case in other parts of the body wherever it wages a strong fight against tuberculosis.

When the intestine is opened we find the coats have become rigid with extensive thickening; its cavity has disappeared to a great extent, the cul-de-sac normally formed by the cecum is effaced, and is only represented by a slight depression. The stricture will generally admit the index finger; it may be more marked, not thicker than a goose-quill; its maximum is reached at the valve, which is shriveled up, rigid, and sometimes impossible to recognize. In exceptionally rare cases the mucous membrane is covered by villous vegetations, granulations and projecting polypi which may be as big as a hazel nut growing above the mucosa but not ulcerated. These polypi have the ordinary structure of intestinal adenoma and are not tuberculous.

The distinctive macro- and microscopic features between the two forms of the disease will best be elucidated by means of lantern slides which we shall show presently.

The pathology thus far outlined, however, will be found to correspond with the clinical symptoms which we believe should be divided into three distinct stages.

#### Symptomatology.

In describing the symptoms of this disease we shall divide them into those due to local condition and those attributed to the general intoxication or reflex responses. It is also necessary in order to clarify the situation, to refer to the three stages of the disease, (1) incipient, (2) advanced, (3) obstructive.

As in practically all tuberculous infections, one of the most important symptoms is the low grade fever. This will rarely be recognized as such by the patient but will usually be described as weakness, loss of ambition, laziness, etc., according to the character of the individual. If the temperature is carefully recorded over a long period, it will be usually found subnormal in the morning and around 100° in the evening. In the child or young adult there may be exacerbations lasting but a few days when the temperature may reach 103° or 104°; these exacerbations probably being due to sudden flooding of lymphatics with toxin which they are



unable to combat. The fever may persist over a number of weeks or months followed by a period of normal or subnormal temperature.

General nutrition is usually not good, the patient being under suspicion of having tuberculosis although no definite focus can be discovered.

As in any case of low grade tuberculous involvement, these symptoms may persist for months or years before definite local involvement can be detected. In some cases definite reflex and local symptoms antedate the general symptoms. Nausea, indefinite abdominal distress several hours after meals, flatulence, periods of constipation followed by diarrhea may lead to various incorrect diagnoses before the true character of the disease is recognized.

The reaction of the ileocecal tissues to the tubercle bacilli leads to a gradual localization of the pain to this region without, however, the rigidity and extreme tenderness that one would expect from a peritoneal involvement. A slowly developing cylindrical tumor, movable from right to left and but slightly upwards and downwards in the right iliac fossa enables the clinician to arrive at a satisfactory diagnosis.

The tenderness, although moderately acute, is usually elicited on deep pressure and the pain is rarely suggestive of a high grade inflammatory condition.

During the second stage of the disease enlarged mesenteric glands are at times readily palpable. These may in the course of hours seem to disappear as the intestines become filled with gas or fecal matter.

In the third or obstructive stage, the symptoms are similar to those found in any partial obstruction of the intestinal tract. On close inspection one can observe the change in the cecum during the attacks of colic. The tumor becomes visible, readily palpable and at times the passage of intestinal contents can be heard followed by temporary relief of both the intense pain and the vomiting.

To summarize: In the early or incipient stage a subject with suspicious tuberculous symptoms presents himself, who has indefinite gastrointestinal symptoms accompanied by pain and tenderness in the right lower abdominal quadrant.

In the second stage we find a readily palpable and movable cecal tumor with symptoms of a low grade localized abdominal inflammation. In both the above stages fever may or may not be present.

In the third stage symptoms of obstruction dominate the field.

In all stages of the disease the absence of evidence of pulmonary tuberculosis and the presence of symptoms suggestive of tuberculosis are of distinct value in arriving at a correct diagnosis.

An x-ray examination should always be made excepting where acute obstructive symptoms are present. Hyperperistalsis and a filling defect in the cecal region may assist materially in the making of an early diagnosis. Ileal or cecal stasis, as demonstrated by the barium meal may point to a threatening obstruction. The use of tuberculin as a diagnostic measure has been practically discarded owing to the danger of lighting up activity.

#### ILLUSTRATIVE ROENTGENOGRAMS.



Inflation of the colon and cecum with air may be of distinct value in enabling the clinician to



palpate the cecum, and should be tried in all doubtful cases.

#### Diagnosis and Differential Diagnosis.

The differential diagnosis between this disease and neoplasms, especially cancer, is fraught at times with a great deal of difficulty. The age of the patient, slow development of the obstructive symptoms, absence of cachexia, the smooth readily movable tumor, all these will point to a non-cancerous growth. In a doubtful case, however, exploration is demanded and a careful microscopic examination of the growth may be the only means of differentiation.

Appendicitis and its complications can usually be excluded in the second and third stages by the palpation of a freely movable cecal mass. In the first stage it is at times impossible to differentiate and only after the removal of a normal appendix and the persistence of the symptoms does one suspect a tuberculous condition of the cecum.

The differentiation from ovarian and tubal conditions is usually easy if a bi-manual examination is made.

Several cases have been reported in the literature where a diagnosis of floating kidney or tumor of the kidney had been made, the operation revealing a tuberculous cecum. A diagnosis can usually be made by noting that the kidney can be moved readily up and down, while the movement of the cecum is from right to left.

There are other conditions which may be met with in this region, such as actinomycosis, psoas abscess, gall bladder disease, etc., which as a rule can be readily diagnosed.

#### Importance of Early Recognition.

It is generally conceded that an early operation in many of these cases may save the patient many years of suffering and frequently save his life. To allow the condition to progress until a complete obstruction takes place is criminal. Every effort should therefore be made to make as early a diagnosis as possible, so that the patient can be operated upon before unfavorable local and general conditions preclude successful intervention.

#### Prognosis.

The prognosis is good as a rule in those cases which have been recognized early and have had proper medical and surgical treatment carried out. Neglected cases where the general condition has been seriously damaged by months or even years of neglect, give but little promise of cure.

#### Medical Treatment.

A tuberculous subject should be treated with the same care, regardless of where the tubercle bacillus lodges. A carefully regulated diet, an out-of-doors life and long hours of rest should be insisted on. When the patient's circumstances will permit, sanatorium treatment should be tried. Heliotherapy should be used both before and after operation. During a recent visit to the Rice Memorial Sanatorium near Buffalo, Dr. Taussig was much impressed by the remarkable results secured by this method of treatment in all forms of abdominal

tuberculosis. Many of the cases which had been operated upon repeatedly, in which the disease was too widespread to relieve surgically, were apparently cured by heliotherapy. Treatment extending over one or two years may be necessary to bring about a cure. Tuberculin of the bovine type should be cautiously tried but only by one who has had a long experience in its use. No form of medical treatment should be carried out after a distinct tumor can be palpated if the patient will consent to operative measures. Operative treatment should be instituted early, before the disease has seriously damaged the patient. Careful postoperative treatment should always be instituted. Many cases after operation lose their chance for complete recovery because of neglected follow-up medical treatment.

The time allotted for this paper has not permitted the writers to give case reports as was contemplated. They hope at some future time to be able to present them before this Society.

#### Surgical Treatment.

While there exists a great diversity of opinion as to the choice of operation, it is universally agreed that the treatment of ileocecal tuberculosis is distinctly surgical. It is evident, however, that an appropriate general medical treatment is highly essential following these operations. From our own observation we prefer an ileocolostomy with or without intestinal exclusion, to that of excision of the diseased intestine, in the majority of cases; first because the mortality is greater in excision than in simple ileocolostomy, and second because the latter will cure the great majority of cases. Should there ensue conditions demanding removal of the diseased intestine, it can be well accomplished at a later date when the surgical risk is less than if it is done in one stage. The operation as performed by one of us (Dr. Shere) is carried out with the same technic as is employed in doing a gastroenterostomy, no clamps being used in either operation. The ileum and cecum, at least ten centimeters away from the diseased area, are approximated without tension, and the upper and lower poles held by guy-rope silk sutures. A posterior continuous serous suture is applied. The intestine is then opened, the redundant mucous membrane excised, bleeding vessels ligated and approximation made by a continuous interlocking suture which passes through all the coats of the gut, the knot being on the inside. The posterior continuous serous suture is then continued anteriorly. In some instances where the disease involves a large part of the ileum and ascending colon an intestinal exclusion is combined with the lateral anastomosis. If the disease is still more extensive, an ileosigmoidostomy can be performed after dividing the ileum and closing both ends as advocated by Lane for severe cases of atony of the colon. In this manner part of the ileum, the cecum, and the colon can be excluded. In five successive operations where only ileocolostomy was performed, recovery was uneventful. The same result was obtained in three other cases where the ileocolostomy was combined with intestinal exclusion, with the exception that in the later group the postoperative



course was marked by meteorism for several days. This, however, may have been only coincidental.

### Summary.

1. The hypertrophic form of the disease is more frequent than is generally supposed.
2. Careful study will lead to an early diagnosis.
3. Properly instituted medical and surgical treatment will lead in many cases to a complete cure.

### DISCUSSION.

**Leonard Freeman, Denver:** Dr. Shere, as he always does, has written a good paper, and thrown light on an obscure subject. These conditions are rather striking. When one opens the abdomen, instead of seeing tubercles scattered all around over the peritoneum, there are no tubercles at all in sight. One sees, perhaps, a round hard tumor of the small intestine near the cecum, sometimes several of them, about the size of a walnut, and almost as hard. It takes some time to make up one's mind whether one has to deal with tuberculosis or not; but by close inspection one can usually see on the surface a few little tubercles.

Dr. Shere has brought up the question as to the origin of this peculiar tuberculous process. Why should it produce these hard nodules without ulcers? Is it not, perhaps, for the same reason that we have what is known as the ligneous abscess, the ligneous phlegmon—as hard as a piece of board? It does not get well and does not suppurate; it stays as a hard mass; the explanation being, possibly, that there is a nice balance between the invading power of the micro-organisms and the resisting power of the individual. We have the same thing sometimes in certain cases of appendicitis. I have seen several of these, although they are quite rare. You open the abdomen and find a hard mass, perhaps as large as a small orange, of fibrous tissue and as hard as a rock. You think it is a cancer or a sarcoma, but if you cut into it you find curled up in the center a little appendix. If a microscopic examination is made of the micro-organisms they will be found to be of the ordinary variety, and we may suppose that this is another manifestation of the ligneous phlegmon in which the resisting power of the individual is nicely balanced against the invading power of the micro-organism. The same thing occurs, possibly, in fibroid phthisis. I am very glad to hear Dr. Shere lay stress upon the desirability of exclusion of these tuberculous areas of the bowel in many instances, instead of resection; in other words, the doing of an entero-anastomosis. I think this should be borne down upon heavily and emphasized, because in so many instances these individuals have partial chronic intestinal obstruction and they have been worn down to a frazzle by lack of food and possibly by vomiting and fever. I think an exclusion should be done, as Dr. Shere says, except in exceptional instances, where the individual is strong enough to withstand a more serious operation.

**C. E. Tennant, Denver:** I was very much interested when I noticed on the program this subject presented by Dr. Shere and I feel it is extremely timely, and a very creditable piece of work. Some twelve years ago I had several such cases in close sequence which I was unable to diagnose, and I called upon my pathologic friends for assistance. They evaded the responsibility and I then went South and East as far as Baltimore and Ann Arbor and to other pathologic centers for diagnosis. The pathologists seemed to "pass the buck," in plain language, or were unable to make a diagnosis for me; perhaps because the history which I gave them was not sufficient. I even had the matter up with Dr. McCarty at Rochester, but I presume I was as much at fault as any one in trying to describe what I thought I had, and since that time the matter has been in abeyance until a few weeks ago. I then saw the subject of hypertrophic tuberculosis written on and discussed, and I began to think that those cases which I had had were of the same type. Since I have heard Dr. Shere's paper I am more satisfied than before that they were.

It was many years ago that these cases came to me with this peculiar type of pathology but I have slides here which were made at that time which I hope to show. The cases were of the extreme type, and not in the earlier condition as Dr. Shere has shown them, and with your indulgence

I would like to place them on the screen. The histories of these cases I have here also and if I have time I will read them.

There are several phases to the pathologic study. In the first place is it the human or bovine type of tuberculosis? We have had reason to believe that tuberculosis of the peritoneum and of the intestines was possibly of the bovine type, and many still hold to this theory today. In the cases to which I have referred, one was in the adolescent period and the other in middle age. They were both diagnosed as appendiceal cases and operated as such. The second case was a typical appendicitis as nearly as we could determine before the operation. After the abdomen was opened it was found to be more than that, and as a result I did a resection of the cecum and appendix, through what was intended for an ordinary appendix incision, and the case came along nicely and left the hospital in about fourteen days. Six weeks afterward there was a relapse which came on with pain at the site of the original incision, and, later on, a fistula. I refused to operate, realizing that the tuberculous fistula was such that it was impossible to close. The case was later operated by a surgeon in Denver but the results were not satisfactory, the wound not healing and the patient finally dying. The question to my mind is in relation to the pathology. Is it not possible to be a progressive stage of tuberculosis that we are dealing with, first of the ulcerative type and then of the hypertrophic, as described by Dr. Shere, with finally a hyperplastic type such as is shown in these slides?

In one set of slides which I show the hyperplasia was marked after the second operation. It seemed to develop a so-called granuloma, as the pathologists called it.

The diagnosis, of course, as yet, is very difficult and we discover that the cecum and sometimes the appendix itself are perhaps the only tissues we can find involved and there is absolutely no miliary tuberculosis to be seen.

**Dr. Shere (closing):** I have but little to add except to emphasize once more that this is not a progressive disease. There is no doubt in my mind that this condition suggests a distinct clinical entity and that its underlying pathology is decidedly different from that of the ulcerative type. The latter point I believe was made sufficiently clear by the stereopticon slides which I have just exhibited before you. The theory advanced by Dr. Freeman relative to balanced resistance appeals favorably to me and if true, would explain the reason why the fibroid type ensues in one case while the ulcerative variety is found in another. Be that as it may, the fact I have tried to accentuate in my paper is the unquestionable existence of the two varieties and the necessity for early recognition. A word about the lymphoid massive appendices alluded to in the discussion. In presenting the subject matter of my paper to different pathologists a suggestion was made that the large lymphoid appendix so commonly found in children and young adults may be of the tuberculous variety. I was very much impressed by the suggestion which can only be clinched by a careful and painstaking microscopic examination of every appendix removed which presents an abnormal amount of lymphoid tissue.

### ABDOMINAL PAIN; ITS SIGNIFICANCE AND SOME UNUSUAL OPERATIVE FINDINGS.\*

C. E. TENNANT, M.D., F.A.C.S., DENVER.

Pain is always an evidence of some abnormal or disturbed process, and is well recognized as one of the most instructive signs we have.

McKenzie says, "The study of its mechanism gives us the key to the best means of obtaining relief". This last statement is well exemplified in the modern interpretation of joint pain, the result of focal infection; the pain being the local manifestation of a pathology, the source of which is frequently far distant from the seat of the pain.

Pain is practically the only sensory manifes-

\*Read at the annual meeting of the Colorado State Medical Society, September 7, 8, 9, 1920.



tation of visceral pathology, and may occur either at the beginning or near the terminal phase of an abdominal lesion, depending upon the time of the involvement of the peritoneum. Its severity also varies greatly, depending upon the organs affected and the extent and character of the pathology. In the slowly progressive chronic lesions, as malignancy, where the peritoneal covering is not involved until late, there is little or no evidence of pain until after some mechanical phase has first called attention to the trouble. In the acute type, however, where serious and immediate danger impends, pain is fortunately one of the first and most important signs to appear, and its proper interpretation is at once called for. The fact that pain is late in development with certain types of malignant growths in the abdomen, makes possible the slow and subtle invasion of these organs without even a reasonable warning, and were it not for the late periods in which gland metastasis occurs, there would be little assurance of results under operative procedure. Fortunately, the gland invasion being delayed makes up in a measure for the loss of time in recognition of the lesion.

Clinical experience has taught us that pain in certain localities of the abdomen has special significance with relation to the organs lying immediately beneath, and yet there are many exceptions found to this rule. These exceptions make the diagnosis of some of these obscure cases extremely difficult, and my plea is for exploration at the hands of a competent surgeon, whenever acute abdominal pain continues unabated for a period of six hours, and in less time when the pain steadily increases in severity and certain of the recognized associated factors are also to be found.

Pain occurs in most of the appendix attacks before any other symptom develops, even the symptom of rigidity, and this pain is usually felt first at the umbilicus, later usually localizing in the right lower quadrant. Therefore, pain here, as in many other abdominal lesions, is not immediately associated with the visceral organs involved, and it is also not uncommon to find both pain and tenderness, and at times even rigidity, at points far distant from the appendix.

That serious abdominal lesions, aside from malignancy, do occur without a definite warning of pain is a well known fact, for embolic infections and large abscess cavities may occur without evidence of pain, until the abscess extends outward sufficiently to involve the continuity of the peritoneal covering. Pain may then develop, although not necessarily will it be found immediately over the site of the lesion.

Visceral pain like thoracic pain is most likely due to some form of stimulation or irritation of the serous layers of the organ involved. We seldom have pain in pneumonia until the pleura is involved, so in abdominal pain the peritoneum probably must either be influenced by actual bacterial irritation—solution of continuity—or by adhesions with their sequential pull or drag

on the mesentery. The well-known observations of Lennander and others have shown us that it is the parietal layer of the peritoneum and the pulling upon the viscera which provoke pain while an individual is under operation with local anesthesia. This may account for abdominal pain after certain types of fall, exercise, as in jumping and athletic work, also following blows landed upon the abdomen, any of which may cause irritation of the parietal layer of peritoneum or, by dislocation of the visceral content or by production of hematoma, produce a drag upon the mesentery.

There is a type of pain occurring in the abdomen the source of which may be from an early acute distended renal pelvis, or from the so-called intermittent hydronephrosis, or from the congenital renal anomalies. In the early acutely dilated renal pelvis, before the pressure has been severe enough to rupture the fibrous capsule, the pain is naturally very intense and the rigidity and reflex symptoms quite marked. In the later stages of the renal distension, when the hydronephrosis has developed, with a large dilated pelvis, and more or less of the cortex of the kidney involved in the hydronephrotic sac, then we have the type of pain which is developed from drag or pull upon the peritoneal reflection or the ligaments.



Patient's complaint was that of pain in the lower right chest. There was no apparent local pathology to account for this. On physical examination the kidney was found to be somewhat low, and pressure upon this area duplicated the pain in the chest. Pyelographic examination of the right kidney evidences a fused kidney with two pelves and two ureters which join about two and one-half inches above entrance into bladder. Pyelogram of left kidney and ureter is negative.

Ovarian cysts also give this excruciating pain during the early period of their formation, or up to the time the original capsule ruptures. Following this, these cysts may grow to enorm-



ous size with no further inconvenience save a mechanical one, or that due to adhesions which drag upon the mesenteric root.

The abdominal pain, or ache, following the ingestion of green fruits and other indigestible foods is well known, but at times misinterpreted. The pain is, no doubt, due to the mechanical peristalsis, local irritation of the mucosa and associated pull upon the mesentery, but rigidity is usually absent unless there is an attending irritation, or an impending peritonitis.

The pain which occurs in visceral intussusception, mesenteric thrombus and omental twists, as well as ileus, is rather diffuse in character, although in each of these conditions there is almost invariably the sense of pulling at the mesenteric roots, and consequently the pain is well up in the abdomen and at times described as coming from the roots attached to the cervical vertebrae. In one instance where a ruptured gangrenous diverticulum of the sigmoid occurred, aside from the slight pain and tenderness in the lower left quadrant the sensation of dragging, pulling pain was distinctly experienced well up in the arch of the diaphragm and along the mediastinum.

The pain associated with acute pancreatitis is similar to that which occurs with post-operative distension of the transverse colon, well up in the abdominal cavity, even to sense of pressure upward on the esophagus, with associated dysphagia.

While abdominal pain is a most constant factor in abdominal lesions, and its character and location as a rule may be considered a guide to the diagnosis, yet one must always bear in mind that its onset and location may be misleading as to the source of the pathology. The presence of pain, however, must be regarded as Nature's first warning for operative intervention, and if persistent it is a most urgent demand for operation.

One must always bear in mind that even after a sharp attack of abdominal pain has subsided, if there still remain tenderness and rigidity with a high leucocytosis, it is possible for the rupture of a distended appendix or other visceral segment to have occurred (which accounts for the temporary relief) and yet a general peritonitis be fast approaching. While the sites of pain and tenderness are usually the guide to the point of attack by the operator, the work should be undertaken with an open mind and a thought that the pathology may be found far distant from the seat of the pain. Therefore, the incision should be quite ample for such a contingency.

This leads to another important symptom, which has already been made, and which should always be considered in connection with abdominal pain. This is rigidity of the abdominal muscles. This symptom is of extreme importance and should be a constant guide in the care of abdominal lesions. It is also true that rigidity is most frequently found directly over the site involved in the inflammatory change. It is interesting to note that this rigidity is even found when calculi, both renal and hepatic, are

lying deeply situated in their respective mucous envelope, and with but little actual peritoneal irritation.

In obstruction of the hollow viscera, before the local pain occurs, there is an impairment in the normal flow of the visceral content; this in turn provokes dilatation and at times rotation of the proximal portion of the gut with pain and distress at the site of the distension, although this may be at a considerable distance from the lesion. Operation at this time without careful search may disclose no pathology. The point of greatest rigidity, however, is frequently close to the point of obstruction.

In citing the few succeeding histories of cases it is done with the knowledge that many have been seen and reported in which abdominal symptoms, especially with reference to pain, were altogether out of keeping with the operative findings; and these brief references have been made in order to more strongly impress upon us the need for careful study of the actual pathology while the patient is on the table. For, as we all know, success or failure, and perhaps the fate of the patient, often hinges upon our knowledge of the pathology and the operative procedure undertaken.

#### Case Reports.

Mrs. M. A., widow, age 48, one child:

Has had discomfort and some pain in the left flank and lower quadrant for several weeks. Taken with sharp pain in the left side at 9 a. m., which continued throughout the day; seen at 10:30 p. m. Marked rigidity and pain were present in the left lower quadrant; right side absolutely negative, leucocytosis marked, diarrhea present, temperature  $99\frac{1}{2}^{\circ}$ . Operation deferred for more definite localizing signs. Following morning temperature  $102^{\circ}$ . Pain in left side more severe. Median low incision; abdomen full of pus, ruptured appendix. Recovery good.

Mrs. H. C. L., age 19, married 3 years, no children:

Stomach trouble and indigestion for past year. Had eaten raisin pie the night before the attack which occurred about 7 a. m., coming on with pain in the lower abdomen, but tenderness and rigidity over pit of stomach. Subnormal temperature at first, rising to  $100^{\circ}$  at 3 p. m., with leucocyte count of 9000 and marked rigidity over the pit of the stomach with tumor and sense of pressure on esophagus. Operated 4 p. m., incision in upper right quadrant, a distended gall-bladder and bulging mass crowding up from behind the stomach. Opening into the mass disclosed a fat emulsifying fluid and rupture of the head of the pancreas, no stones. Eventual recovery.

Mrs. H. C. S., age 24, married six years, no children:

Had many attacks of illness from childhood up to the present time; nothing serious, however. Has been having pain in the right side of the abdomen, with constipation, for past two years. Diagnosed by several as chronic appendicitis, and operation recommended. On liquid diet for past six weeks, weight now 112 pounds,



three years ago was 124 pounds. Heart sounds are on the right side, the heart apparently transposed. Pain and tenderness in the epigastrium and right lower quadrant, no rigidity. Left kidney in second degree of prolapse. Pyelograms show the left kidney low, right in normal position. Further x-ray studies disclose complete transposition of stomach, heart and liver, which accounts for the low kidney on the left side below the liver. Her appendix was on the left side. Why the right-sided pain?

C. R. D., male, age 20:

First taken ill with diarrhea followed by general abdominal pain, no vomiting. The pain, however, was principally on the left side and flank for about fourteen days, when it suddenly shifted to the right side. At this time a tentative diagnosis was made by the attending physician and the case sent to Denver for operation. On entering the hospital his temperature was 99°, there was general abdominal rigidity below the umbilicus with great pain on pressure, leucocytosis 28,000. Rectal examination disclosed a soft palpable mass filling the entire pelvis, which made defecation impossible. A median incision was made when the pelvis was found to be tense with foul pus, the roof being firmly walled off with adhesions. Further search for the appendix was not made. Recovery followed a stormy period of influenza during our recent epidemic. Diagnosis, ruptured appendix. Why left-sided pain for fourteen days?

Mrs. P. M., age 20:

Attack of sharp pain at 9:30 a. m. in epigastrium and extending to the left side and back. Has had attacks of indigestion prior to this but never attacks similar to this. Examination shows a well nourished woman, apparently very healthy but in excruciating pain. Patient indicates this to be over left half of stomach and left side of back. Examination disclosed mass in the left upper quadrant with relative rigidity over right lower quadrant, but no tenderness. Temperature throughout the day sub-normal, leucocytosis 7,000. The patient being in such unusual pain, operation was decided upon and at 8 p. m. an incision was made in the upper left rectus muscle immediately over point of pain and swelling. Nothing but a dilated stomach could be found, all other organs and the viscera here were normal. The appendix was, after great difficulty, delivered into the incision and found to be in an active inflammatory state with some fluid present. Appendectomy was done and recovery quickly followed with no return of left-sided pain.

Miss E. H., age 26:

Pain over pylorus, with nausea two or three hours after meals, tenderness and rigidity over entire left side, stomach analysis showing marked hyperacidity. Patient then disappeared from the Clinic. Forty-eight hours later she was taken with violent pain in upper right quadrant and called a nearby physician who was unable to make a diagnosis until two days later when patient was brought into the hospital with a diagnosis of perforated stomach of forty-eight hours standing. Immediate

operation with closure of perforation and drainage was employed. After seven days septic temperature began to mount, which continued for sixteen days when a terminal septic pneumonia developed, resulting in death. During all this time the patient was quite comfortable, experiencing no pain nor tenderness, nor was there any rigidity, until something apparently gave away in the upper right quadrant. Immediately following this, pneumonia developed. Autopsy findings by Dr. W. S. Dennis: The entire lower lobe of the liver was adherent to the abdominal wall. On breaking through this wall a large quantity of foul fluid pus was liberated. The abscess had replaced practically the entire right lobe of the liver. The cavity was bounded above and on three sides by the diaphragm, internally and below by the liver substance. The diaphragm was perforated, involving the base of the right lung.

Here we have a liver abscess of enormous di-



**Specimen of liver abscess (right lobe).** This abscess was believed to have originated in the substance of the right lobe as the result of an ascending infection from a perforated duodenal ulcer. The abscess finally reached the diaphragm and perforated through into a bronchus at the base of the right lung, which was adherent to the diaphragm in its entirety.

mensions with no pain but a small amount of tenderness and practically no rigidity. Is it any wonder we sometimes fail in making a diagnosis? Conclusion: The saving of one abdominal drainage well justifies the early operation of all cases, even at the expense of an occasional unnecessary surgical interference.

**TITLES AND ABSTRACTS FOR PAPERS TO BE READ AT THE STATE MEETING AT PUEBLO SHOULD BE SUBMITTED BEFORE JULY 15.**



## DISCUSSION.

**J. N. Hall, Denver:** I think we ought to say a word about left-sided pain in appendicitis. I have seen a good many cases in which there was considerable pain on the left side. It looks exactly like any other appendicitis, except that the pain is all on the left side. I recall at this instant that Dr. Freeman operated on a case where the appendix was on the left side. In one case with Dr. McGraw, the woman had a recent gonorrhea, and we diagnosed a right tube, and in spite of the gonorrhea, felt it imperative that something be done. We found nothing whatever the matter with the tube, but an acute appendix—an adherence to the left part of the uterus—a very confusing case, and I do not suppose diagnosis was possible.

I have spoken of this years ago, and here I think it will bear repetition, namely, you have a pain in the left side of the abdomen where the appendix points over towards the navel, and in some cases adheres to the spine. I remember the wife of a mining man of Colorado who had all her symptoms on the left side of the abdomen. I asked the attending physician what he would say about the diagnosis if the symptoms were all on the right side, and he said, "Anybody would say it was a chronic appendicitis." Dr. Powers operated the case, and after finding the appendix about the region of the fourth lumbar vertebra, he said, "Well, that could not have caused all these symptoms," and he pulled out every inch of the intestine and went over it, and after he got through there was still doubt in his mind. The patient gained twenty-seven pounds in the next few months.

There is another left-sided pain, due to a reflex gastric hyperacidity. The patient complains of pain here (indicating), and not infrequently up as far as the heart. I have had patients sent to me with the idea that the heart should be examined, as they evidently had some functional disease of the heart. With an acute appendix it is not uncommon to have a reflex spasm of the diaphragm. In one recent case I demonstrated to other physicians that one can find dullness in the lower region of the right lung; a slight dullness is easily to be found, and one must not confuse that with pneumonia. This has very much more decisive signs and symptoms.

**T. R. Love, Denver:** I think one of the troublesome things at times is to make up our minds as to whether or not the abdominal pain is due to a beginning of an acute appendicitis or is really the result of too much green corn and similar things, which we are so liable to take at this time of the year, and I think some of the cases may be differentiated in part by this fact: that pain is associated with a violent pain in the lumbar regions, not a pain on one side, but a persistent ache on both sides of the back. One of the cases of which Dr. Tennant spoke was one of pain on the right side, and the interesting fact about that case was that she complained so much of pain in the lower chest, the lower right chest, but physical examination of the chest did not warrant laying the blame there entirely. There was very little to be found in the chest. The x-ray picture showed those ordinary changes such as we find as the result of influenzal pneumonia, but on taking the right kidney in the hand one could reproduce to a very great extent the pain in the right chest of which she complained. The liver abscess is of particular interest on account of the absence of pain, and that absence of pain was not due to profound shock such, for instance, as we find in general peritonitis. That woman, three days before death, was sitting up in a wheel chair and had what we believed to be an ordinary septic temperature resulting from a localized abscess below the liver on the right side. The pain, such pain as she did have, was extremely mild. As I say, she was able to be up in a wheel chair and progressed favorably until all of a sudden she went to pieces. The left-sided pain of acute appendicitis in the cases spoken of reminded me of one instance I saw some years ago: I was called out about 2 o'clock in the morning to help convince a family that the woman needed an immediate operation. She complained bitterly of severe pain in the region of the spleen, and physical examination of the spleen was entirely negative. The interesting point was that pressure over the appendix would immediately bring on a fresh attack of this pain. I always hated to speak of that case until I read McKenzie's book on pain and his explanation of this pain, but we did operate that woman and found an acute hemorrhagic appendix.

**R. E. Holmes, Cañon City:** I had a case about ten days ago that may have been mistakenly diag-

nosed—a young girl about 10 years old came into the office about 2 o'clock in the afternoon, had a temperature of a hundred and four degrees and complained of chill at 11 o'clock in the day. There was tenderness all over the right side, rather diffuse, and I considered awhile whether that was a real appendicitis or whether it might be something else, and after inquiring into the diet found that it had not been extraordinary. The patient was sent to the hospital and operation begun in about four hours from the time I saw her. After opening the abdomen I found rather an acute hemorrhagic appendix, but I also found a very much thickened ileum for about one foot or so. I said to my assistant: "This looks to me like a typhoid area." I took out the appendix and closed the wound, put the patient to bed and began the usual treatment for typhoid. The patient had had five hemorrhages, the temperature had been below 102.6° and she was running a real virulent type of a typhoid case.

**Dr. Tennant (closing):** There are one or two points I wish to emphasize here; the first is this: With abdominal pain it is time to operate. We had a patient a few days ago who had been having pain in the abdomen for probably two or three years. It had been tolerated and the operation put off at different times, with perhaps the advice of her physicians, "You don't need operation", and when she did come to the operation the entire upper portion of the abdomen was, as you might expect with these old cases, one mass of adhesions, and there was a considerable number of gallstones. The patient had a close call. Why? Because she had tolerated abdominal pain for a long period. I want to say that this case of double pelvis of the right kidney had an absolutely normal left kidney.

## BRANCHIAL FISTULAE; WITH REPORT OF A SURGICAL CASE.\*

LEWIS I. MILLER, B.A., M.D., DENVER.

Our professors of surgery are in the habit of impressing on their students the necessity of making a diagnosis of the most common diseases in order to be right in the majority of instances. This is a good procedure; but in the case of masses in the neck, it will lead to error, if at the same time one does not keep in mind the many possibilities.

Conditions which one must think of, either in private work or clinic practice, are: tuberculosis, syphilis, lymphosarcoma, medullary carcinoma, Hodgkin's disease, metastatic carcinomata, retropharyngeal abscesses burrowing through the connective tissue planes, thyroglossal cysts, carotid body tumors and branchial cysts or fistulae.

Among the most interesting pathological conditions due to defective development of the foetus are the branchial fistulae. Of the four branchial arches in the four-weeks foetus, only the first cleft should persist, forming the hyomandibular cleft, from which develop the ear, auditory canal, eustachian tube, etc. The other three should coalesce in fetal life, leaving the neck smooth, and the pharynx should only show slight markings as reminders of these clefts. If closure does not take place, the clefts persist as congenital formations known as branchial cysts or fistulae.

These fistulae may (a) open into the pharynx and, at the same time, open on the skin; (b) they may open only outwardly; (c) they may open only inwardly; or finally (d) they may have neither outer nor inner opening and may thus persist as blind fistulae. The fistulae may

\*Read at the annual meeting of the Colorado State Medical Society, September 7, 8, 9, 1920.



persist as mere tracts, lined by hypoblast within, and epiblast without, separated by a layer of mesoblast.

Our case is of the first type, that is, the complete fistulae. The tract opened into the pharynx, clearly demonstrated by the injection of methylene blue, and at the same time there was an opening at the skin about two centimeters above the right sternoclavicular junction.

The branchial cysts form one of the most interesting examples of the Cohnheim theory of the causation of tumors. They are due to embryonal rests of the epithelium left from the branchial clefts in the tissues of the neck. It is interesting to note that these embryonal rests seldom develop in the first few years of life. It has been the experience of most observers that somewhere from the tenth to the thirtieth year the embryonal rests begin to grow and develop cystic tumors. The epithelium may be either squamous cell, columnar, or ciliated, depending upon whether it is from that portion which is near the pharynx. The cysts are filled with fluid often of a pea-soup variety. Sometimes the fluid is very dark, possibly as a result of some hemorrhages that have occurred in the cyst, the fluid, of course, being produced by the lining epithelium.

Maldevelopment at the site of the second cleft causes most of the branchiogenic anomalies which call for surgical care. These anomalies may consist of cysts, complete fistulae, or blind fistulae. The cysts lie in the side of the neck and are developed from sequestrations of branchial tissue. The complete fistulae have internal openings near the tonsil and external openings at or near the anterior margin of the sternomastoid muscle, somewhere between the hyoid bone and the clavicle. They are as a rule lined with epithelium cylindrical at the inner end and squamous at the outer. The blind fistulae are similarly constructed, but without openings.

It has never been proven that complete fistulae form either from the third or the fourth clefts. (McKenty, Whitacre, König).

**Case Report:** The patient here discussed is a boy age ten, who came to Denver a few months ago from New York.

**Present Complaint:** Annoying discharge from an opening on the right side of the neck, which opening existed from birth. The external orifice often became closed, causing a tumor-mass to be formed in the neck, only to disappear when the discharge was allowed to escape.

**Past History:** Patient has had the usual diseases of childhood.

**Family History:** Mother died of tuberculosis. Father living in Denver but suffering from tuberculosis. One sister age nineteen was mentally defective, otherwise she was physically well. No blood relation existed between father and mother. Wassermann on father was negative.

**Physical Examination:** The patient was a well developed boy, unusually alert and observing. Eyes, nose and ears were normal.



Fig. 1. M. S., age 10, before operation. A, external opening, from which a muco-purulent discharge escaped.

Tonsils were removed two years ago. There was an opening two centimeters above the sterno-clavicular junction on the right side, between the two tendinous insertions of the sterno-cleido-mastoid muscle, from which a muco-purulent discharge escaped, especially on palpating that side of the neck. The skin around the orifice retracted and puckered with the act of deglutition. A soft metal probe was inserted into the external opening for about five or six centimeters.

On injecting methylene blue, the patient promptly tasted it and expectorated the blue fluid. One was able to see that the methylene blue was oozing from around the region of the right tonsil; but the exact opening was not visible. This of course indicated that the fistula was complete, with an opening on the skin and at the same time an opening into the pharynx, in the region of the right tonsil. Heart, lungs and liver were normal.

**X-ray Findings:** Roentgenograms taken by Doctors Frank B. Stephenson and L. H. Wade, after injecting a saturated solution of K. I., revealed that there was a linear non-branching sinus extending from just above and a little to the right of the sterno-clavicular junction on the right side upward and backward to a point communicating with the pharynx on a level of the right tonsil. The tract became progressively smaller as it ascended and at its middle part lay in close proximity with the hyoid bone, as is well seen in Fig. 2. The injected fluid was



tasted by the patient and felt, as it entered the pharynx.



**Fig. 2. Roentgenogram by Dr. F. B. Stephenson, showing linear non-branching sinus. A, hyoid bone; B, external opening at sterno-clavicular junction; C, internal opening at base of tongue, in region of r. tonsil.**

**Operation:** On July fourteenth, under ether anesthesia, methylene blue was injected into the external opening and a soft metal probe inserted upward to the region of the hyoid bone. An incision was then so made as to leave a disk of skin about the margin of the opening and to extend upward and backward toward the angle of the jaw. Flaps including the platysma were then separated on each side and the wall of the sinus was exposed to view. It lay on the deep fascia parallel to the sternohyoid muscle, and was astonishingly distinct. It resembled a large vein. It was rather easily separated from the fascia.

The remains of the right tonsil were removed, as both tonsils had been operated upon about two years ago.

When the lower end of the fistula was abducted, the probe passed into the pharynx near the lower end of the tonsillar fossa. The upper part of the sinus was then separated from its attachment close up to the pharyngeal muscle. The separation was so satisfactory that the inversion of the upper end of the tube into the pharynx seemed possible. The pharyngeal end of the fistulous tube after being separated was tied and pushed through, with a hemostat. The ligature was then withdrawn through the mouth and the end of the fistulous tube following it was inverted into the pharynx and

tied with linen. Its complete removal was thereby accomplished.

This procedure is of course the ideal one, since it completely removes the epithelium of the sinus and the embryonic wall which includes it. This method, however, is not always practicable. Operative records show that there is considerable variation in these fistulae. McKenty states that "If the development of the vessels be normal, a fistula of the second cleft must lie between the external and internal carotids." This corresponds to the embryology of the part, for the cleft lies between the embryonic external and internal carotid arteries. But the very existence of a fistula bespeaks abnormality and variations in position are not to be wondered at. Karewske and König have given very careful descriptions of some of these fistulae and have found their walls densely adherent to the great vessels of the neck.

On the other hand, Von Hacker and Whitacre have described cases similar to the one here reported. The sinus walls were loosely attached to the surrounding tissue and could easily be loosened well up to their pharyngeal openings. In the writer's case, the position of the external carotid artery could be palpated but not seen. It was behind and not in front of the fistula and was not attached to its wall. Hence, we find that fistulae with similar external and internal openings differ much in their median attachment and therefore in the difficulty of their removal.

For the adherent cases, König has devised an ingenious method of treatment. He frees the distal end of the fistulous tube as far as he can and then passes this free end through the mucous membrane in front of the tonsil, and stitches it there, thus leaving a curved sinus with an internal opening at each end—the posterior one pharyngeal, the anterior one buccal.

Figure 3, represents a section of the wall of this fistula near its inner end. Dr. E. R. Mugrage, Pathologist of the University of Colorado, has reported upon it and has identified the structures as they are described beneath the figure. In a section taken near the external opening he found a lining of squamous epithelium surrounded by a wall of fibrous tissue which showed marked round cell infiltration.

The patient left the hospital in ten days, the wound being healed. Up to the present time, the boy has been perfectly well. We feel sure that we have completely removed the sinus and all embryonic tissue.

We know from the literature that these cases often go unrecognized even to the extent of being operated for tuberculous glands, etc., with recurrences two and three times, until the true nature of the pathology is recognized, and complete extirpation is done. Only in complete removal of the embryonic tissue lies the cure.

If this paper has impressed upon you the fact that in the diagnosis of masses of the neck, one must not only look for the common conditions, but also for these developmental abnormalities, it has served its purpose.

In conclusion I wish to thank most heartily,



## TUBERCULOSIS OF THE EYE.\*

WILLIAM C. FINNOFF, M.D., DENVER.



Fig. 3. Microphotograph of transverse section of wall of branchiogenic fistula, near its distal extremity. A, columnar epithelium; B, lymph follicles; C, strands of unstriped muscle tissue; E, areolar tissue; F, bundles of striped muscle.

Dr. O. M. Shere for his most excellent advice and aid in the management and surgery of this case; Drs. Stephenson and Wade for their roentgenographic plates and lantern slides; Dr. E. R. Mugrage for his pathological studies, and Dr. Eli A. Miller for his advice and assistance.

826 Metropolitan Building.

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THE COMMITTEE WILL SHARE YOUR DISAPPOINTMENT IF YOU DELAY UNTIL AFTER THE PRINTING OF THE PROGRAM.

DON'T WAIT UNTIL THE TIME LIMIT—SEND THE NOTICE OF YOUR DESIRE TO PRESENT A SUBJECT AT THE PUEBLO MEETING NOW! SEND THE TITLE AND ABSTRACT OF SUBJECT MATTER WITH IT.

In a community where tuberculosis is so common, all types of the disease are likely to come under the physician's care and he should be familiar in a measure, at least, with some of the symptoms which occur when special organs are affected by the disease.

In ophthalmic practice the occurrence of tuberculosis of the eyes is not uncommon. In fact, this condition is much more frequent than has generally been supposed.

Prior to Koch's description of the tubercle bacillus in 1884, little was known of this subject, and the true nature of many eye conditions was not suspected. Even after the tubercle bacillus was described little was learned about the chronic types of tuberculosis which are so frequently found in the eye. It was not until after the value of tuberculin as a diagnostic and therapeutic agent was understood that ophthalmologists discovered a number of the eye changes, which had formerly been classified as idiopathic, to be of tuberculous origin.

Tuberculosis of the eye occurs at all ages and is found in both sexes about equally. Like tuberculosis in general it is found most often in young adults. One striking fact about this disease when it is found in the eye, is that the affected person often seems to be in perfect health, and no other demonstrable areas of activity can be found in the body. However, we all know that about ninety-five percent of the persons who reach adult life have had tuberculosis in a mild form, and their resistance has been sufficient to retard active proliferation and lower the virulence of the organisms. These attenuated tubercle bacilli remain dormant until a time when certain tissues are in a state of lowered vitality, and then attack them without producing changes in the more resistant primary focus. If we think of pure tuberculosis as a focal disease, a view of it advanced by Jackson and published in the *Journal of the A. M. A.*, Feb. 14, 1920, the *modus operandi* of chronic intraocular tuberculosis is easily understood.

Intraocular tuberculosis almost invariably is a pure tuberculosis without secondary involvement by other organisms.

Tuberculosis occurs in the eye in either an acute or chronic form. It attacks all parts of the eye, excepting the lens, and the organ is either primarily or secondarily involved. The primary, non-traumatic form of tuberculosis of the eye is rare, and is confined to the lids, cornea, caruncle and lacrimal sac—areas which are directly exposed to the invasion of tubercle bacilli from external sources, i. e. air, dust, etc. In wounds which penetrate the eyeball and permit the entrance of tubercle bacilli into the eye, any of the eye tissues may become primarily involved in a tuberculous process. Primary tuberculosis of the iris, optic nerve, and other intraocular tissues, not associated with trauma, has been reported, but it is probable that an

\*Read at the annual meeting of the Colorado State Medical Society, September 7, 8, 9, 1920.



undiscovered latent tuberculous focus existed in some portion of the body and was the source of the infection. It is frequently very difficult and often impossible, even where a marked constitutional reaction to tuberculin is obtained, to locate the primary tuberculous focus. In such cases there is a temptation for the observer to classify the ocular lesion as primary. In the majority of cases it is secondary to tuberculosis in some other portion of the body, and with the exception of the type of choroidal tuberculosis that is associated with general miliary tuberculosis and tuberculous meningitis, the disease in the eye usually runs a chronic course.

The acute types of tuberculosis of the eye run a rapid course and the involved area is quickly destroyed by caseation and necrosis. In this variety the destruction is usually extensive, and if the patient does not die soon after the onset of the eye condition, the eye most often is converted into a tuberculous mass which necessitates enucleation.

The chronic types are more protracted, and often are confined, at least in the beginning, to one portion of the eye. During the course of the disease there is little or no pain and often the involvement is quite extensive before the subject is aware of the presence of any trouble. Hemorrhages are common because of the vasculitis. The process may be active over a period of months or even years, and recurrences of activity may manifest themselves at any time, in an eye which was thought to be healed. One cannot be sure, so long as the patient lives, that the disease will not again become active.

I wish briefly to cover some of the characteristic changes which take place when the various parts of the eye are attacked by tubercle bacilli or their toxins.

All parts of the eyelids are susceptible. The skin becomes involved most often as a secondary manifestation of lupus of the skin of the face. This disease is quite common in Europe, but it is rare in America. The skin manifestations may also be secondary to lupus of the conjunctiva and lacrimal sac. The symptoms are essentially those of lupus of the skin elsewhere. Lupus of the mucous membrane of the lids occurs and great care must be exercised to prevent the occurrence of symblepharon (adhesion of the lids to the globe), which is prone to follow the healing of the ulcers. In lupus of the conjunctiva, the preauricular lymph glands rarely enlarge or suppurate. It differs in this respect from isolated, primary tuberculous ulcers of the conjunctiva. In all ulcers of the palpebral conjunctiva, when associated with enlargement of the preauricular or submaxillary lymph glands, the presence of tuberculosis should be suspected and not excluded until repeated laboratory tests, including microscopic examination, cultures and animal inoculation from scrapings and secretions obtained from the lesions, have proven negative. The ulcers have the characteristic ragged edges and uneven "worm-eaten" base. Yellow nodules varying from the size of the head of a pin to the extent of the whole conjunctiva, with or without ulcer-

ation in a thickened and often anemic conjunctiva, are also characteristic.

It is held by some authors that phlyctenular conjunctivitis and keratitis are manifestations of tuberculosis in these parts.

Tuberculosis of the sclera occurs as nodular enlargements which are deep purple in color. Often the cornea is involved, and the invasion extends in from the limbus. This form is always chronic in its course and exceedingly likely to recur.

Tuberculosis of the cornea occurs in one of four types. The first is a typical tuberculous parenchymatous keratitis, distinguishable from parenchymatous keratitis of syphilitic origin by a more or less diffuse opacity limited to one part of the cornea, which does not invade the whole cornea as syphilis does. Small points of whitish-yellow infiltration are found in the middle and deeper layers of the cornea, and are isolated tuberculous nodules. They are usually located in the peripheral portion of the cornea, but sometimes are found in the central part. Vascularity is never so pronounced as in the vascular form of syphilitic keratitis. Sometimes, in addition to these clinical features, episcleritic nodules or infiltrates near the limbus, periodic eruptions of miliary phlyctenules, typical scleritis, or iritis with tubercles are found. The affection is usually monocular but both eyes may be involved. The second form is a simple parenchymatous keratitis characterized by diffuse opacity occupying only part of the cornea and is associated with slight pericorneal injection. The third form is the typical scrofulous or phlyctenular kerato-conjunctivitis. A fourth is sclerosing keratitis in which grayish opacities resembling cold mutton fat are seen in the cornea. Occasionally the infiltrated portion of the cornea breaks down and forms ulcers. Unless ulcers are present, the only symptoms complained of are photophobia, increased lacrimation, and visual impairment.

Tuberculosis of the iris occurs as numerous small miliary tubercles, as one solitary tubercle which resembles a neoplasm, or as a diffuse iritis, which resembles iritis due to other causes. It is found most often in youth, occurring usually between the ages of five and twenty-four years. However, the condition has been reported as occurring in infants and in old persons.

In the miliary type the iris lesions are seen as small elevations of yellowish or grayish character, occurring in both zones of the iris. If the disease is progressive the elevations become confluent and change to a grayish red color. Later the cornea and ciliary body become involved and perforation of the globe near the limbus is not uncommon. The course of this type of tuberculosis of the iris is extremely variable. Some cases are chronic throughout, others are of mild character for a time, suddenly become acute, and result in rapid destruction of the eye or even in meningitis, while other cases are acute from the onset.

The confluent or conglomerate tubercle resembles a tumor of the iris. It is yellowish white in color and often smaller nodules can



be seen surrounding the large mass. This growth remains confined to the anterior segment of the globe and the supra-choroidal space is only rarely involved in the process. In this class perforation of the eyeball most often occurs at the angle of the anterior chamber before involvement of the choroid or vitreous takes place. In the third type the symptoms resemble those of iritis in general. The iris is thickened, often, however, without unusual congestion of the blood vessels, and in this type definite tubercles are not seen.

The ciliary body is usually involved with the iris and produces the symptoms common to cyclitis. The degree of involvement varies in different cases.

Retinal tuberculosis occurs most often as a vasculitis or a perivasculitis of the retinal vessels which manifests itself in the beginning, as a rule, by a collection of white infiltrates which surround the retinal vessels. The veins are most frequently attacked. The condition, at this stage, is probably a perivasculitis. The caliber of the vessels is not materially altered in the beginning but as the condition progresses the vessel walls become involved in a true vasculitis. Varicosities and constrictions are noted in different portions of the same vessel. If the exudation is slight and the vitreous is clear at this stage, the patient may not suffer from alteration in the visual acuity. In fact, he may not realize the existence of any disease in his eyes unless some other portion of the eye is involved in conjunction with the retina. In one of the author's cases corneal involvement in the beginning of the disease caused sufficient lacrimation and photophobia to call the patient's attention to his eyes. With the absence of visual disturbance or other disagreeable symptoms the vascular type of retinal tuberculosis may go undetected until the hemorrhagic stage of the disease is reached.

The vascular walls become thinner and finally hemorrhages occur which vary from comparatively small ones confined to the retina, to massive hemorrhages which either push the vitreous forward or burst into it. It is at this stage that the patient is likely to first consult his physician. In the milder types of hemorrhage the blood is absorbed and often no permanent trace is left. In the massive type the vision is lost, or very markedly diminished, at the time of the hemorrhage. As a rule, it is permanently impaired due to the replacement of the hemorrhagic exudate, at least in part, by connective tissue in the form of retinitis proliferans.

Where recurrent hemorrhages occur into the retina and vitreous with improvement of vision between the attacks the presence of tuberculosis should be suspected. This is especially true if the condition is found in young persons.

In another form of retinal tuberculosis the disease is confined to the retinal structures and the macula is most often the seat of greatest involvement. The lesions are small white areas in the retina which resemble those that are found in albuminuric retinitis. If they are located in the macula the vision is impaired. These lesions often clear up entirely and leave

no scars visible with the ophthalmoscope. Occasionally the optic nerve is involved in conjunction with the retinal process.

Tuberculous masses may develop in the retina and be mistaken for tumors. These are usually associated with tuberculosis of the nerve or ciliary body and are only diagnosed by the microscope after enucleation of the eye.

In the sheaths and septa of the optic nerve miliary tubercles are not infrequently found. They occur secondarily to extension from either the eye, the orbit, or the brain. The disease may occur as a single small tubercle, as several small miliary tubercles, or as one large tuberculous mass. The lesion can be located any place along the course of the nerve, either intraocular or retro-bulbar, and may be confined to one type of tissue or involve both the coverings and the nerve fibers. The symptoms vary with the amount of involvement but in general are those of optic neuritis due to other conditions. Early enucleation is advisable if the involvement is extensive or if the condition fails to yield to treatment.

Tuberculosis of the choroid is manifested usually as small, round, isolated, yellowish elevations under the retina. One or several of these may be present. They are often seen in acute miliary tuberculosis and early in tuberculous meningitis. Their presence in a meningitis is always a grave sign. In the acute types the patient usually dies before the lesion advances materially. In the chronic, less virulent form the tubercle breaks down and the choroidal and retinal pigment is disturbed. When the disease is arrested, black or dark brown patches of pigment are seen scattered throughout the fundus.

A word regarding the ophthalmologists' views on the diagnosis and treatment of the chronic types of this disease will not be amiss at this time. I believe that I voice the sentiments of the larger group of ophthalmologists when I say that tuberculin is a very valuable aid in making the diagnosis, and when combined with general hygienic treatment is of great value as a therapeutic agent in chronic tuberculosis of the eye. Before using tuberculin for diagnostic purposes, it is essential that active tuberculosis elsewhere in the body first be excluded, and it should never be used for this purpose when active pulmonary tuberculosis is present. After noting the patient's temperature for two or three days, tuberculin is given. It should be injected subcutaneously and the patient observed for twenty-four to forty-eight hours for local, constitutional, and focal reaction. Without a focal reaction I do not believe that one can prove positively that the disease is tuberculous. For diagnostic purposes we use the O. T., start as a rule with 0.1 mg. and increase the dose rapidly if no reaction occurs after the first injection. One should not be contented with negative results until after a dose of 5 mg. is given.

In combination with general hygienic treatment tuberculin is a great therapeutic adjunct. The dose should be just within the reaction point or enough to produce an evanescent reaction.



In making the diagnosis and in carrying out the treatment the cooperation of internist and ophthalmologist is essential. The ophthalmologist is not qualified to determine whether tuberculosis is present in an active form elsewhere in the body and it is necessary to receive the report of the internist before giving the diagnostic dose of tuberculin. The internist should also supervise the general hygiene of the patient during the course of treatment.

In conclusion I wish to emphasize again the fact that tuberculosis frequently occurs in the eyes of apparently healthy persons in whom no other tuberculous focus can be found.

318 Majestic Bldg.

#### DISCUSSION.

**Melville Black, Denver:** There is a great deal to be said on this subject, and I wish to commend the gentleman for presenting such an excellent paper. Whatever the views may be against the use of tuberculin in other forms of tuberculosis, there is no question as to its value in the ocular forms.

**F. R. Spencer, Boulder:** I am thinking of Dr. Finnoff's statement that tuberculin is of value in these cases. I had an experience while in the army which brought home the fact that many physicians do not appreciate this. An officer who was quite high in the Dental Corps of the regular army had what to my mind was a definite tuberculous scleritis and iridocyclitis. Finally when everyone else had failed to help, I was consulted and suggested tuberculin. Dr. Levy, then Major Levy, was also a consultant in this case, and we talked the matter over with the commanding officer. The commanding officer was a very able internist, and I do not want this to reflect upon him, but he said he did not have much faith in tuberculin. The result was that tuberculin was not used. The day I left the service I saw this dental officer, and as I said goodbye to him, I noticed his eye was not any better.

A great many physicians who do not believe in tuberculin in the treatment of pulmonary tuberculosis, or other tuberculous conditions, will keep us from using it for the eye when we believe its value has been tried and proven.

After Dr. Jackson had written some of his articles, I was able to collect thirty-three cases in the literature of tuberculosis of the retinal vessels, and I called the commanding officer's attention to these thirty-three cases, but it did not impress him. I am glad Dr. Finnoff mentioned that one feature along with the many others.

**Edward Jackson, Denver:** Dr. Stark in Texas, who had studied tuberculosis of the eye before he entered the service, had to face considerable difficulty; but he finally got permission from his commanding officer to use tuberculin, both for diagnostic and therapeutic purposes, and he got good results. He convinced his commanding officer, and convinced those who saw the cases that there was value in tuberculin for eye tuberculosis. It is not hard to understand how this is possible. The conditions in eye tuberculosis with regard to infection are totally different from the conditions in pulmonary tuberculosis. The mass of tubercular tissue, the mass of bacilli in such a case, even if it is small, is totally different from the mass in the eye. We had a very striking case of a small lesion in fatal pulmonary tuberculosis reported at the Denver County Medical Society last winter. The lesion, where there was a cavity, and the infiltration, was as large as the end of the little finger. Excellent clinicians could not discover where the hemorrhage was coming from, until on post mortem the little lesion was found in the lung. But that is an immense lesion to what we find in the eye. Without the ophthalmoscope we could not see such minute lesions.

A pulmonary lesion, pouring out toxins and getting all the possible beneficial effect in arousing the resistance to the specific process, is a totally different thing from these closed lesions in the eye, which are practically cut off from vessels and are sending nothing into the general system; and a totally different problem is raised. The internists simply consider the tuberculin treatment with reference to the large lesions and reject it. The ophthalmologists consider it with reference to the minute lesions they have to deal with, and they find it is beneficial, and that must be understood. It has just as much standing before science in the

one case as the other. The weight of the men who have heretofore thrown their opinion on the one side is not the deciding factor. We have got to get down to the real conditions that we are dealing with, and decide the value of tuberculin by the facts.

**W. A. Sedwick, Denver:** I found it hard to have our commanding officer let us use tuberculin for diagnostic purposes; it was almost impossible. I think some of the commanding officers would allow it to be used, but ours absolutely refused to allow us to use it.

**Dr. Spencer:** Rank is a very important thing in the army, and very unfortunate, sometimes, as in the case of this Colonel in the army, in the dental corps.

**Dr. Finnoff (closing):** The reason for presenting a paper at this time before the Society was to bring before you the fact that tuberculosis of the eye exists and that it frequently exists in apparently healthy persons. The internists have felt that we have been overstepping ourselves in making a diagnosis of tuberculosis when signs of tuberculosis have not been found elsewhere in the body. It is often difficult to differentiate these cases from other types of focal infection, but long observation of the effect of tuberculin establishes the diagnosis. If you get a focal reaction in the lesion after injecting tuberculin, even though it is slight, a positive diagnosis can be made.

## News Notes

Owing to the printers' strike in Denver, this issue of Colorado Medicine is put out one week late.

Dr. W. A. Sedwick of Denver, who was operated on for appendicitis early in April, made an excellent recovery and is again taking care of his practice.

The incorporators of the Boulder Hospital Association are Drs. Carbon Gillaspie, M. E. Miles, W. W. Read, who with Drs. F. R. Spencer and C. W. Poley constitute the board of directors. The capitalization is \$50,000, divided into 500 shares of \$100 each.—Press notice.

Drs. M. A. Spangleberger and W. E. Blanchard of Denver left for Chicago in March for postgraduate study; Dr. Spangleberger to give special attention to genito-urinary diseases; Dr. Blanchard to operative surgery and x-ray diagnosis.

Dr. W. A. Adams, 405 Majestic Building, Denver, desires to share his office with another doctor.

Dr. G. M. Blickensderfer of Denver returned May 9 from a month's vacation spent in California.

Dr. R. E. Holmes of Cañon City has been appointed physician to the Colorado State Penitentiary following the resignation of Dr. E. C. Webb.

Dr. George E. Richmond, for ten years a practitioner at Center, has returned from postgraduate study at Washington University and will associate himself with Dr. J. W. Ames in the practice of pediatrics.

Dr. Frank E. Rogers of Denver has announced the opening of his office at 802 Majestic Building, Denver.

Dr. Arnold Minnig of Denver left for California May 6, expecting to be gone until June 1.

Dr. Melville Black of Denver returned May 9 from a trip to Honolulu.

Abraham Flexner, general secretary of the general education board of the Rockefeller Foundation, will be the speaker at the University of Colorado commencement in June.

Dr. E. Gard Edwards of La Junta is taking a course in urinary tract diagnosis at the Philadelphia Postgraduate School.

Dr. F. W. E. Henkel of Rifle, after attending the American Medical Association convention in Boston, will extend his stay in the East over a considerable period. He would like to hear from a doctor who would take his practice during his absence.

For the benefit of public health officers, physicians, nurses, social workers, etc., the Public Health Service proposes to conduct at Washington a public health institute to take place during the fall of 1921, covering courses in diagnosis and treatment of tuberculosis; nutrition in health and disease; sanitary engineering; clinic nursing and social work; clinic management; syphilis and gonorrhea; mental hygiene; industrial hygiene; child hygiene; vital statistics; laboratory diagnosis; health centers, and psychology and sociology.

Dr. H. G. Wetherill, after spending the winter in California, has returned to Denver, where he is expected to remain at least for the summer months.



The Colorado Association of Anesthetists was organized Friday, May 6, at the University Club, Denver. The following officers were elected; President, Dr. Karl Roehrig, Denver; vice president, Dr. L. R. Allen, Colorado Springs; secretary, Dr. George B. Lewis, Denver; treasurer, Dr. O. C. Hickman, Denver. There are approximately twenty members of this new association. Dr. David E. Hogue of Pueblo was appointed representative to the American Association of Anesthetists.

Dr. William C. Mitchell, city bacteriologist of Denver, has been appointed also state bacteriologist.

Dr. C. B. Lyman returned to Denver in the latter part of April after an extended trip to California.

Dr. John Andrew of Longmont left April 26 to attend an international convention at Edinburgh, Scotland.

#### Otero County News Notes.

Dr. A. L. Stubbs of La Junta is the new incumbent of the position of county physician and Dr. H. E. Hall is newly appointed as city physician of La Junta.

The condition of Dr. R. N. Pollack, of Rocky Ford, who has been confined to his bed for several months, shows little improvement.

Measles and mumps have flourished luxuriantly at La Junta for the past six weeks.

Dr. Thayer of La Veta has purchased a half interest in the Pollack Hospital at Rocky Ford.

The State Society secretary acknowledges receipt of programs for annual meetings of the following societies: The Medical Association of the State of Alabama, which met at Montgomery April 19, 20 and 21; the Kansas Medical Society, which met at Wichita April 26, 27 and 28; the Mississippi State Medical Association, which met at Laurel May 10 and 11; the Nebraska State Medical Association, which met at Lincoln May 9, 10, 11 and 12; the West Virginia State Medical Association, which will meet at Charlestown May 24, 25 and 26; the American Association of Anesthetists, which will meet at Boston June 6, 7 and 8; and the Canadian Society of Anesthetists, with the Interstate Association of Anesthetists, the New York Society of Anesthetists and the Ontario Medical Association, meeting to be held at Niagara Falls, Canada, June 1, 2 and 3.

The Western Section of the American Roentgen Ray Society, which includes the states of Washington, Oregon, Montana, Idaho, California, Nevada, Arizona, Colorado, Wyoming, Utah and New Mexico, will hold its second annual meeting at Portland, Ore., May 27 and 28, at the Portland Hotel. The Pacific Coast Roentgen Ray Society will cooperate in this meeting, holding their winter session at the same time and place. Dr. Roy Payne, Stevens Building, Portland, is the chairman of the committee on arrangements.

#### DEATHS.

Dr. A. M. MacLean of Leadville died April 20, 1921, of paresis, at the age of 70 years. Dr. MacLean was one of the early-day physicians of Leadville, having received his Colorado license in 1881. He was in active practice until about ten years ago, when he entered the Lake County Hospital, where he died. His brother, Donald MacLean, was president of the American Medical Association in 1895. In early days here Dr. MacLean was surgeon for large mining companies and for a time conducted a private hospital. He was internationally known as a marksman.

#### Postgraduate Medical School in Vienna.

The following announcement has been received by the editor:

"Vienna, March, 1921.

"The following information is respectfully submitted by the dean of the Vienna medical faculty for the consideration of those physicians who intend to do postgraduate medical work in Vienna.

"It is pointed out that the facilities for study and the well-known unlimited material of our clinics and outpatient departments are practically the same as before 1914. It is furthermore emphasized that all this material is available for teaching purposes and that the professors, dozenten and assistants are ready to resume the teaching of graduate physicians in the same manner as before. The total number of beds in the 'Allgemeines Krankenhaus' in Vienna which are available for teaching purposes amount to 1,300. The opportunity for observing postmortem work is also the same as formerly. The number of autopsies is about 3,000 annually. The Vienna medical faculty consists of about the same members as before. The official

lectures and courses are delivered in German, special arrangement, however, may be made for private English courses.

"Living conditions for Americans and foreigners in general are very good, and cost far less than in the United States; one need not hesitate to come here because of the food conditions, as these apply only to the native population. The living expenses will not be more than about 50-60 doll. for one month.

"Further information relative to any work besides the enclosed program of the regular postgraduate lectures or more detailed information about the latter will be gladly furnished by addressing 'The Editor of the Wiener Medizinische Wochenschrift, Vienna, IX, Porzellangasse 22.'

"Respectfully,

"HABERDA, M. P.,

"Dean of the Vienna Medical Faculty."

(The enclosure referred to was a schedule of free lectures by leading surgeons, internists and pathologists covering the period June 6-18, 1921.—Editor.)

## Medical Societies

#### COLORADO SPRINGS CLINICAL.

The regular meeting of the Colorado Springs Clinical Club was held at the El Paso Club on April 27, 1921, thirty members being present. The President occupied the chair.

It was moved by Dr. Magruder, seconded and carried, that hereafter the minutes of the club be published in Colorado Medicine.

Under the roll call Dr. Gilmore reported the following case history: Female, 39; family history negative; usual weight 145 lbs., present weight 140; during adolescence suffered repeatedly from quinsy. In 1914 patient had a chill, followed by fever which persisted for some months; accompanied by pain in left chest and shoulder and by annoying cough. In 1915 had a similar attack which was diagnosed as pleurisy. The following year normal labor. An enema being given fifteen hours after labor, patient became unconscious for several hours. On regaining consciousness she discovered that vision was lost. Ophthalmologic report negative; no evidence of paralysis; some numbness of right side. Six weeks following, had severe pain, diagnosed as neuritis. In 1917, patient referred to Mayo Clinic for loss of vision. Ophthalmologist's report again negative. Psychotherapy instituted; pregnancy advised. Following this patient went to Ann Arbor, Michigan, where similar advice and treatment were given. In 1920, patient's weight having fallen to 116 pounds, diagnosis of tuberculosis of left lung was made; sputum being tuberculosis positive. In January, 1921, patient was seen by Dr. Gilmore, the chief complaint being marked dyspnea on exertion; pulse 100, temperature 98°, respiration 22, weight 140. Physical examination revealed evidences of infiltration in right lung, accompanied by a few râles. The left chest revealed displacement of the heart with apex in left anterior axillary line; blood pressure 78-110, 80-135; now 70 and 115 left, 75 and 135 right. Examination of urine and blood negative. The roentgenogram confirmed the physical findings. Discussed by Dr. Stevens, who thought that embolism was a possibility, the reflexes being normal. Dr. Stevens also suggested that hysteria should not be overlooked as a probability in diagnosis.

Dr. Magruder suggested embolus of the optic chiasm. He dwelt on the possibility of focal infection. Dr. Marbourg suggested sphenoidal infection. Further discussion by Drs. Gilbert, Lennox, Crouch, Hartwell, Boyd.

Dr. Hartwell reported the following case history: Female, age 27, neuropathic history; one sister has tuberculosis and at pregnancy had dementia puerperalis. This patient was a puny child during the first ten years of life; had all the childhood diseases. From 10 to 17 enjoyed good health. In 1908 patient suffered from nervous prostration for three months, principal symptoms of which were headache, emotional disturbance and considerable pain above the fold of the right groin. In 1910, due to persistence of this pain, appendectomy was done. In 1914, patient had a five months' miscarriage; flow continuing, curettage was performed. This was followed by convulsions. In January, 1915, there were daily convulsions, as many as three each day. An abdominal operation was performed. Convulsions ceased. In February,



1917, abdomen again opened. Appendix removed; also one ovary and both tubes. Following operation, wound opened; purulent discharge; patient much annoyed by hiccough which persisted from Sunday to Friday. In May, 1917, patient had a sharp uterine hemorrhage which was not relieved by curettage. In March, 1918, patient was again subjected to abdominal operation for the purpose of removing the uterus, but on inspection, hysterectomy was not done. The bleeding continued. Pituitrin was exhibited hypodermatically. A septic hematoma developed at the site of administration; gave the patient considerable trouble. In February, 1920, patient was seen by Dr. Hartwell; marked abdominal tenderness was the outlying symptom; the hemorrhage from the uterus persisting, a series of x-ray treatments were given. Some reaction followed and hemorrhages became less frequent. In November, 1920, patient suffered a sharp hemorrhage from the uterus; the hemoglobin dropped down to 80° with nausea as a concomitant. In December, 1920, flowing again as profusely as ever; hemoglobin index 70; the red counts 2,500,000; some eosinophilia; stools negative. The patient's condition being now desperate, it was determined to remove the uterus. On examining the ablated material, a tumor one and one-half to two centimeters in diameter was discovered in the uterine wall, in appearance like a small fibroid. The pathologist's report stated the tumor was adenomyoma. Convalescence has been necessarily protracted; at present time patient is making a slow but consistent gain. Dr. Gilmore inquired if any of the various hemostatic preparations such as thrombo-plastin had been used, and what was the opinion of the men present as to the value of such preparations. Dr. McKinnie stated that he recollected the septic hematoma which followed the administration of pituitrin. He stated that in many cases the hemostatic sera were of considerable value. Drs. Martin and Mayhew both discussed the value of hemostatic sera in uterine hemorrhage, Dr. Martin stressing the intravenous method of administration.

JOHN FRANCIS McCONNELL,  
Secretary.

#### FREMONT COUNTY.

The regular meeting of the **Fremont County Medical Society** was held on April 25, 1921, in the Colorado State Penitentiary by courtesy of the prison physician, Dr. R. E. Holmes. There were some very interesting and unusual cases reported.

F. R. Moore and Otis Orendorff reported an 8-year-old boy with hereditary syphilis, whose paternal grandfather died of a gumma and whose parents and a younger brother and sister are apparently free from the disease. E. C. Webb reported a sponge case, the offending body lying dormant in the abdomen for five years and then causing a fistula and requiring removal.

C. H. Graves spoke of a case of multiple neuritis resulting from a severe appendicitis.

R. E. Holmes gave a bedside clinic presenting a 21-year-old male in the terminal stages of Addison's disease, the first symptoms occurring eighteen months ago when the patient suddenly developed homicidal mania. There has been slight recent improvement under large doses of suprarenal extract.

The society then adjourned to the home of H. C. Graves, where the doctor and his wife acted as hosts and served a delightful "Dutch lunch," which was complete in all details.

OTIS ORENDORFF, Secretary.

#### OTERO COUNTY.

On May 5 the **Fort Lyon Sanatorium Medical Corps** tendered the Otero County Medical Society, at Fort Lyon, a six o'clock dinner, preceded by a business session in the afternoon. Captain Adams gave an illustrated talk on Radiography and exhibited numerous plates that were marvels in clearness and beauty. The dinner was one that satisfied the inner man in addition to pleasing the palate. Commander Rieber and Captain Garrison were hosts royal and the meeting was unanimously declared the most enjoyable and instructive one ever attended by the Otero County Society members. Drs. Johnston, Edwards, Brunk, Calonge and Stubbs, of La Junta; B. B. Blotz, Lorimer, Lovejoy, Wolfe and Thayer, of Rocky Ford; Zillman of Manzanola, and Brown of Las Animas were present.

#### PUEBLO CLINICAL AND PATHOLOGICAL.

The regular meeting of the **Pueblo Clinical and Pathological Society** was held as a dinner meeting April 13, at 7 p. m. The following program was presented, discussed by fifteen members:

**Dr. William Senger.** Three cases reported. "**Wound of Femoral Artery Within Scarpa's Triangle.**"

Case No. 1—A rent one-half inch long in left femoral artery; hemorrhage moderate; end-to-end anastomosis of artery attempted after sharp dissection of lacerated tissue; unsuccessful. Dry gangrene with line of demarcation two inches above knee joint. Amputated. Healing by first intention.

Case No. 2—Shot through femoral artery two inches below Poupart's ligament. Rent on side of vessel. Hemorrhage very profuse; the tear of vessel sutured. Unsuccessful. Dry gangrene, necessitating amputation three inches below knee joint.

Case No. 3—Shot through femoral artery two inches below Poupart's; hemorrhage slight; some fibers of anterior crural nerve cut. Sharp dissection of lacerated tissue; anastomosis of the two ends of the femoral artery; suturing of lacerated nerve; pad of fat put around both artery and nerve; bullet then removed from within the knee joint where it had entered without injury to the bones; complete restoration of function of entire leg for sensation, circulation and motion in four months from time of injury.

#### Discussion:

J. Snedec: I wish to report one case of "Gun Shot Wound of the Artery." Sutures were taken which subsequently ruptured. Wound of the nerve was evident, for the patient lost the use of the leg for a while but finally made a good recovery.

J. C. Epler: Surprising how often these large wounds will be blocked with clot, and there is but little hemorrhage. In a case which I saw—no pulsation in leg—we found the hole through both sides of the artery; no external hemorrhage but the hemorrhage had followed down the muscles, and we found large clots. Ligation or suture should always be attempted. Collateral supply most generally quite good. I congratulate Dr. Senger on having 33½ per cent recovery of these desperate cases.

Dr. Senger, in closing: In the case of recovery I could find collateral circulation by the stethoscope but not by palpation. In the two unsuccessful cases there was gangrene, and they were absolutely dry. In the case which recovered we got direct circulation through the artery within two days after operation.

**Dr. R. R. Taylor.** Case report. **Abdominal Mass Due to Infection in a Postpartum Case.**

Housewife; age 26; nativity, Texas. Family and past history negative, with the exception of mother who died following amputation of leg caused by puerperal infection. On September 20 patient complained of being unable to keep down food or water. Examination disclosed pregnancy, six weeks. Subsequent vomiting was controlled by Corpus Luteum. Monthly examinations of urine were made, which were negative. Monthly report of patient showed satisfactory progress. I was called to see patient about 1:30 a. m. on February 19 on account of uterine contractions, occurring every thirty or forty minutes. Slight hemorrhage. Patient stated that for the past four or five days she had been having quite severe pain in the inguinal region, but that she had felt better the past day and that her pains came on after she was asleep, awakening her about 11 o'clock that night. Removed to hospital in ambulance. Hypodermic of morphine was given and patient remained comfortable until the next afternoon, when contractions came on more severely, and about 6:30 living fetus was delivered. No cervical or perineal tears. For four days patient's condition was satisfactory. On the afternoon of the fifth day the temperature rose to 102½ degrees. She complained of intense pain in the left inguinal region. The pain and tenderness gradually increased, spreading up the whole right side of the abdomen. Definite tumefaction of this side. Seemingly localized in the right kidney region, posteriorly. W. B. C. showed 20-22,000. Poly's 80 to 82 percent. Wassermann, negative; urine, negative. On eleventh day postpartum operation was determined upon. Lateral incision above crest of ilium, into postperitoneal swelling, disclosing no pus, but a mass to the right of the median line about the level of the third lumbar, three inches by one and one-half inches in size. We then decided to open the abdomen, which was done in the median line. Examination of the pelvic organs showed them to be normal as far as could be seen. The appendix was postcecal and adherent in the region of the mass above disclosed, and was



removed. Both wounds closed with drainage. Smears taken from the depths of either wound two days later, and from the vagina, showed a pure culture of streptococcus hemolyticus. After a stormy convalescence, patient made a perfect recovery and is now gradually resuming her usual duties.

#### Discussion:

C. W. Streamer asked if there were any cervical or peritoneal tears present, and if instruments were used.

J. C. Epler: This woman had a mass, very tender, and fever. She could not stand much manipulation. I thought we certainly would find some pus, but we did not. The mass could easily be palpated. This was operated and drained. No pus was found in the drainage except that which finally came from the operative wound. The question is, could this patient have recovered without operation and drainage? I think the operation was justified, and that the chances of recovery would have been slight without it.

Dr. W. Lucas: This is a very interesting case. The question as to recovery without operation: I think not. She likely would have had a drainage into the peritoneal cavities and have died. Where would the infection come from? Did she have a phlebitis?

F. M. Heller: I think it does but little good to operate in the presence of streptococcus hemolyticus, as it is not a pus-producing organism, and I do not think the operation was a proper procedure.

William Senger: I agree with Dr. Epler that operation was indicated. You had a definite mass. This was not walled off, and infection would likely spread.

H. T. Low: I do not care to discuss the paper, but as the majority are against Dr. Heller, I am with the majority. We all have often put a knife into mass without getting pus. We get a drainage and the case makes recovery.

R. R. Taylor, in closing: This patient made a very stormy recovery, and in two months left the hospital. There were no tears of any kind. I think that the infection was a lymphatic one from the vagina. I think that if the patient had not been operated she certainly would have died, as she was going bad very fast and should have been operated three days earlier.

#### C. W. Thompson. A Case of Hypopituitarism.

A case of pluri-glandular disturbance in a man of 31. Family history negative. The patient was well up to October, 1920, when he suddenly became mentally sluggish and unable to work. At this time the symptoms were very suggestive of hypothyroidism, myxedematous type. The patient continued to fail and was admitted to Woodcroft in January. At this time the outstanding features were mental and physical sluggishness, increased bodily weight, slow pulse, mild optic neuritis, impairment of vision and slightly subnormal temperature. There gradually developed a marked polydipsia and polyuria. The Wassermann was negative in the blood serum and spinal fluid. X-ray examination practically negative; no hemianopsia. Occasional bitemporal headache. Diagnosis, disease of the hypophysis (hypopituitarism).

Dr. Thompson then gave a review of recent literature bearing on the purpose and functions of the anterior and posterior lobes and the pars intermedia of the hypophysis. The case was freely discussed and many interesting points in endocrinology were brought out.

#### Discussion:

R. Finney: We have a case in the Minnequa Hospital very similar. Four months ago had typhoidal fever, intense headaches, low blood count, Widal negative on three occasions. At the end of three weeks we then decided that he had encephalitis. He slept two to four weeks. He gradually improved and went home, but after a week at home returned. At this time he began drinking large quantities of water, twenty-five to thirty bedside pitcherfuls each twenty-four hours. There was no sugar in the urine, no eye signs. The writers speak of ten or twelve types of encephalitis, one being catatonic, and I think this case is of that type.

F. M. Heller: I should like to ask what medication is being used?

C. W. Streamer: I should like to know about the organic medication being so widely advertised?

H. A. LaMoure: Is this patient improving?

C. W. Thompson, in closing: We are giving the patient 5 grains of the whole pituitary body once a day. There is a danger in giving pituitrin over long periods of time. I feel that the advertised products are somewhat overdone and that there is too much commercialism connected with them.

Short case talks were called for and made by Doctors Epler, Taylor, Wallace, Low and Senger.

The following men were announced to be on the program for next meeting:

Doctors D. E. Hoag, C. W. Streamer, H. A. LaMoure, F. E. Wallace.

F. E. WALLACE, Recorder.

#### SAN JUAN MEDICAL.

The San Juan Medical Society met in regular session at Durango, April 6, 1921, Dr. A. W. Robbins presiding.

Dr. A. F. Hutchinson reported a case of rodent ulcer involving the outer canthus of the eye.

F. D. Burns, D.D.S., read a paper entitled "Focal Infection in Relation to Systemic Disease From a Dental Standpoint". This was followed by general discussion.

Dr. A. W. Robbins reported on his trip East and South.

Dr. G. S. Driver of Ignacio was elected to membership.

A motion to appoint a permanent program committee to outline a program for the year was carried.

A motion to thank Dr. Burns for his paper and to submit a copy of it to Colorado Medicine was carried. A special Entertainment Committee for the July meeting was appointed, viz: A. F. Hutchinson, H. A. Lingenfelter, J. C. Darling.

JOHN C. DARLING, Secretary.

## Book Reviews

**The Surgical Clinics of North America, Philadelphia Number.** (Issued serially, one number every month.) Volume I, Number 1. By Philadelphia Surgeons. Octavo of 259 pages, with 112 illustrations. Per clinic year (February to December): Paper, \$12 net; cloth, \$16 net. Philadelphia and London: W. B. Saunders Company.

The Surgical Clinics of North America, which supplants the Surgical Clinics of Chicago, makes its first appearance in the February, 1921, number. The "Clinics" is to appear bi-monthly as before and show the work of the different medical centers instead of Chicago alone. This initial volume is the Philadelphia number. W. W. Keen writes the introduction to the new publication.

The expansion of the contributing staff to include the best surgeons of all North America should enhance the value of this practical journal immensely. We should be able to see something of the work of all our large cities, the ways of doing the simple as well as the more difficult operations, the advances in technic that appear from time to time, and occasionally a rare and unusual case. If good illustrative cases are selected and presented with clearness and detail, the publication should be the most valuable current surgical journal for the rank and file general surgeon.

The Philadelphia number is excellent. Two contributions deserve particular mention. The clinical lecture of Frazier on trigeminal neuralgia describes thoroughly the diagnosis, the choice of treatment, and in simple steps his excellent, curative and almost non-dangerous operation. From Gibbon's clinic we have his exposition of Stewart's incision for amputation of the breast, considered by many to surpass all others for thorough removal of carcinomatous areas as well as for future function of the arm. The lecture of Deaver on pancreatitis and the clinics of Da Costa or Ashbourn are also well worth while and should not be overlooked.

G. B. P., Jr.

**Practical Preventive Medicine.** By Mark F. Boyd, M.D., C.P.H., Professor of Bacteriology and Preventive Medicine in the Medical Department of the University of Texas. Octavo volume of 352 pages with 135 illustrations. Philadelphia and London: W. B. Saunders Company, 1920. Cloth, \$4 net. (Reviewed below.)

**Hygiene of Communicable Diseases.** A Handbook for Sanitarians, Medical Officers of the Army and Navy and General Practitioners. By Francis M. Munson, M.D., Lieutenant, Medical Corps, U. S. N., Retired; Lecturer on Hygiene and Instructor in Military Surgery, School of Medicine, Georgetown University, etc. Illustrated. Published by Paul B. Hoeber, New York. Price, \$5.50.

As these two books are full of valuable information and have strong points and weak points, we shall discuss them together.



The most striking features of Munson are: Military, naval and railway sanitation, and especially his chapter on "causes" of communicable diseases. Seventy pages are devoted to the discussion of this subject, beginning with predisposing conditions and ending with filterable viruses. He enumerates age, sex, race, conjugal condition, environment, occupation, climate, season, heat, cold, air, light, diet, alcoholism, drug habit, physical and mental exertion, excesses (physical, mental and sexual), loss of sleep, abnormal positions of the body, constriction of body by clothing, etc., etc. Under animal parasites he mentions protozoa and metazoa with their class, order, genus; and specifies fourteen kinds of trematodes or flukes, seven different kinds of cestodes or tape worms and thirty-two kinds of hematoda.

Continuing is an account of hirudinea or leeches, arthropodia, arachnidia ixodoidea, insecta, not leaving out the cootie. He next pays his respects to the flea and the mosquito, not forgetting the house fly nor the rat, ending up with vegetable parasites, bacteria and filterable viruses.

Taken by and large, a most interesting and entertaining chapter.

The strong features in Boyd are: "Production and Inspection of Milk" and "Milk as a Route of Infection". As there have been a number of epidemics of disease in this state caused by infected milk, and as sooner or later the milk supply of the state must be under the State Board of Health, these chapters were studied with a great deal of interest.

The weak spots common to both books were five in number: (1) No mention of the hygiene of middle age—45 to 60; (2) differential diagnosis of smallpox; (3) technic of vaccination; (4) diphtheria; (5) septic tanks and subirrigation.

Why should not the degenerative diseases among those of adult age be discussed as well as the hygiene of infancy and youth? Surely it is worth while to prolong the life and usefulness of the individual who should be in his prime at 50.

Owing to the enormous increase of smallpox everywhere, I believe the modern book on preventive medicine should give more than the ordinary description of the disease; a differential diagnosis between the diseases with which it is most likely to be confused, as chickenpox, impetigo contagiosa, etc., would be in order.

The technic of vaccination calls for scratches one-half to one inch long and up to three in number. The liability of infection and the systemic reaction induced by such a procedure are what help to make anti-vaccinationists.

Diphtheria, owing to its increased prevalence everywhere and the certain means which we have in its control, i. e., antitoxin, Schick test and T. A., should be given more attention with a view of arousing doctors and health officers to a sense of their responsibility to the public and their patients in the prevention of the disease.

The subject of septic tanks with sub-irrigation for the rural home deserves more extended notice with a sufficient number of drawings and data to enable the householder to install the plant.

There are a few other things that I would like to find in a work on public health such as: Directions for conducting the office of the State Board of Health; what use could be made of the birth, death and communicable disease reports, other than statistical; what literature should issue, and is it good taste to adorn the pages of same with the photographs of the writers? J. W. M.

**Practical Medicine Series: Eye, Ear, Nose and Throat.** Vol. III, 1921. The Eye: Casey A. Wood, C.M., M.D., D.C.L. The Ear: Albert H. Andrews, M.D. The Nose and Throat: George E. Shambaugh, M.D. The Year Book Publishers, Chicago. Price of this volume, \$1.75. Price of the series (8 volumes), \$12.

The first part deals with the eye and is taken care of very nicely by Dr. Casey A. Wood. He starts out by giving rather a complete examination of the eye, dealing very extensively with "Test Objects for Illiterates" and giving a great many illustrations which are new and unusual. There is a short article given to "Hygiene". Following this is "Refractions"; this is gone over very extensively and there are some very good illustrations as to the checker-board chart as seen by the ametropic and astigmatic eye. He takes up very nicely the technic in the operation of the lacrimal sac through the nasal passages, mentioning the operation done by Fraser. His points are mentioned in the operation for removal of cataract both previous to the operation and post-operative. Some

of the causes for failure and the complications are mentioned. Toxic amblyopia, with report of cases, is very interesting; some of the trouble has been caused by wood alcohol, homatropine, eserine, quinine and botulism.

A portion of the book which is good for the general practitioner is Eye Symptoms in General Diseases. Some very good points are taken up such as iritis from dental infection, the eye in epidemic encephalitis lethargica, migraine; also what to do in some of the ocular injuries from lime, steel and foreign bodies in the eye. The book on the eye is closed with therapeutics.

The ear section has been very effectively gotten together by Albert H. Andrews of the Chicago Polyclinic. The first topic he takes up is the relation of the physician to otology, which is certainly a most essential one and should be read and pondered over and the principles lived up to by the physician as well as the practicing specialist on the ear. It pleads for operative interference in cases of otitis media, especially where the streptococcus mucosus capsulatus has been identified as the infecting germ. He gives two very good points in regard to the syringing of the ear, both for the removal of wax and also for the removal of cerumen. In the interpretation of the symptoms of mastoiditis, Tivnen gives simple analysis of pain, tenderness on pressure, discharge, temperature, sagging of the postero-superior meatal wall, changes in the drum, light reflex, blood examination and x-ray. An interesting experiment, most convincing, made by E. R. Lewis of the Medical Air Service, is given. The normal findings in dead vestibule deaf-mutes, in live vestibule deaf-mutes and in tabetics are stated.

The nose and throat section is by George E. Shambaugh of Rush Medical College. Under general considerations he speaks of the interpretation of headache coming from sinus trouble or, by location, whether it is unilateral or bilateral, location of pain, whether superficial or deep, character of the pain. Dr. R. G. Reaves speaks of nerve blocking for nasal surgery, the injection of Meckel's Ganglion is a little more difficult procedure than the injection of the nasal nerve. Douching of the nose is a very doubtful procedure even at the best, but he gives a very good description of how good can come instead of harm. Of course the subject of removal of tonsils is always one which brings out a great deal of discussion. This book deals with several different methods, some of the complications resulting from hemorrhages, delayed healing, etc.

The book is one that should be read by the general practitioner and the specialist alike. It really should be studied, as it is worth one's time and energy to dig rather deeply into some of the topics merely mentioned in this book.

E. E. McK.

#### MODERN MEDICINE CHANGES NAME.

With the May issue the name of this magazine will be changed from Modern Medicine to the Nation's Health. This is being done to make the title more clearly descriptive of the present scope and the new and greatly enlarged service of the magazine in health promotion and conservation.

The change of name and the broadening of its field of endeavor complete the transformation of the Interstate Medical Journal, the predecessor of Modern Medicine, from a publication devoted to clinical medicine to a health magazine of broad national service—a magazine devoted to community, industrial and institutional health problems.

The Nation's Health will continue those features which have proved most interesting and serviceable to the readers of Modern Medicine, but will cover the subjects treated more completely, and in addition inaugurate other features which are important in the new and wider field.

#### NEW AND NONOFFICIAL REMEDIES.

During April the following articles were accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Armour & Co.: Suprenalin Solution-Armour.  
The Diarsenol Co.: Silver Diarsenol; Silver Diarsenol, 0.05 gm. ampules; Silver Diarsenol, 0.1 gm. ampules; Silver Diarsenol, 0.15 gm. ampules; Silver Diarsenol, 0.2 gm. ampules; Silver Diarsenol, 0.25 gm. ampules.

Hynson, Westcott & Dunning: Mercurochrome, 220, soluble.



# Colorado Medicine

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## Editorial Comment

### STATE MEETING PLANS.

The editor has been unable to get in communication with the arrangements committee since the occurrence of the disastrous flood at Pueblo, and hence can not make any statement as to whether the plans for the annual meeting in October will be in any degree affected. The assumption and hope are that within the intervening period the enterprising citizens of Pueblo will have brought about a rehabilitation of the stricken city and will be ready to extend a glad welcome to the medical profession of Colorado. The program committee will soon be ready to announce the titles and abstracts of papers to be read. As to honor guests, President Spencer states that invitations have been accepted by Dr. Frederick W. Bancroft, New York; Dr. John F. Golden, Chicago, and Dr. J. C. Masson of Rochester, Minn. Subjects upon which these guests will address the meeting will be announced as a part of the regular program. Members desiring to read papers are again reminded that the time limit for the reception of titles and abstracts by the program committee is July 15.

### NOTHING NEW UNDER THE SUN.

You have all seen various paintings by the Dutch masters, of the sixteenth century physician holding up a quaint flask half filled with wine to the light streaming in through the stained glass windows and scattering its rays through the fluid, producing a wonderful color effect which the painters loved so well to portray.

The cynics and satirists of those days did not miss the opportunity of leveling their shafts of sarcasm at the pompous doctors who endeavored to impress the patients with their wondrous wisdom in diagnosing their ailments by ocular inspection of their urinary excretions.

The scene changes. Time: the Year of Grace 1921. Place: any doctor's office in a small town. In the foreground, a large x-ray machine dazzling the beholder with its massive mahogany, burnished brass, shiny nickel and glistening glass.

Exaggeration! you say. A survey of a community of 5,000 population in northern Colorado

harboring twelve physicians revealed eleven radiographic outfits. The twelfth x-rayless one happened to be a nose and throat specialist who by a miracle escaped the wily snare of the x-ray salesman. En passant, it may be stated that there was only one microscope and no centrifuge in the whole town. No proof was available that urines were examined by other than the "sink test."

Moral: Must we have Molière rise up from his grave to mock us?

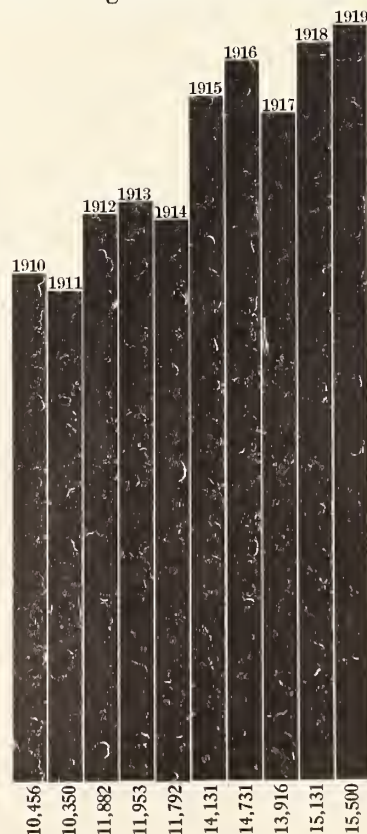
Verily, nihil novi sub sole.

P. H.

### STATE BOARD OF HEALTH NOTES.

Birth registration in Colorado beat the population in increasing nearly fifty percent, while the population increased only about twenty percent in ten years.

#### Birth Registration in Colorado



Considerable effort has been made to increase the reporting of births. We have had some

very good registrars who watched the returns very closely, and when a birth occurred in his or her district the doctor was gently prodded to "send in them births". Some of the women's organizations have made appeals to the families direct, using a circular gotten out by this department, sending them out by thousands, the salient feature of which was "Reasons for birth registration", giving eleven reasons for having births registered, viz:

1. To establish identity.
2. To prove legitimacy.
3. To show when the child has a right to enter school.
4. To show when the child has the right to seek employment under the child labor law.
5. To establish the right to inherit property.
6. To establish the liability to road duty.
7. To establish the right to vote.
8. To qualify to hold title to and to buy and sell real estate.
9. To establish the right to hold public office.
10. To prove the age at which the marriage contract may be entered into.
11. To comply with the law.

Every once in awhile we are gravely informed by some recalcitrant doctor that he cannot be made to report births unless he is paid for his services. That attitude, besides being contemptible, has no standing in law. The following opinion by the attorney general will make interesting reading:

State Board of Health, Capitol Building,  
Denver, Colo.

Gentlemen:

According to your request for information upon the question of whether or not the State may compel a doctor to register births and deaths without pay, I desire to state:

It is the opinion of this department that physicians and surgeons and midwives may be required to keep a registry of all births and deaths at which they have professionally attended, without pay.

In *Commonwealth vs. McConnell*, 116 Ky. 358, 76 S. W. 41, it was held that a statute requiring physicians and midwives, without compensation, to keep a registry of all births and deaths at which they had professionally attended, showing name and sex and color, and names, ages and residence of the parents, and to deposit a copy of same in the office of the county clerk, is not unconstitutional, but is a valid police regulation.

See also *State vs. Wordin*, 56 Conn. 216, 14 Atlantic 801; *Robinson vs. Hamilton*, 60 Ia., 131, 14 N. W. 202.

The only case that we have been able to find to the contrary is *State of Ohio vs. Boone*, L. R. A. (n. s.) 1015, but we believe

the better rule to be followed is that set out above.

Very truly yours,

VICTOR E. KEYES,  
Attorney General.

By Chas. H. Sherrick, Assistant.

CHS/MB

Some of these days the federal government is going to make a test to see if we are in the ninety percent class. Are we?

COLORADO STATE BOARD OF HEALTH.  
J. W. M.

## *Original Articles*

### EVOLUTION OF STEINACH'S THEORY ON SEX DETERMINATION AND RE- JUVENATION.\*

ZDENKO VON DWORZAK, M.D., DENVER.

Amongst the seemingly unattainable dreams of mankind, the wish to maintain the prime of life, of putting off the decline, in other words of rejuvenation, stands out as the most passionate in the hearts of men. Not for all of us is old age a natural and beautiful epilogue of life's drama. Due to external and internal causes many individuals have not been so fortunate as to devote in all phases of life their best powers and abilities to the worthiest purposes. It is chiefly these men, who have attempted in prose and poetry, in biographical and scientific studies to reach the goal, a phenomenon of which I wish to speak, a remedy for old age. From Hufeland to Metschnikoff many very capable men have worked on it and their repeated failures led to the belief that rejuvenation was unattainable.

Yet it seems that all strong and great dreams of humanity become true with time. And the day will come when we will realize that those were not mere dreams, but possibilities, prophetically suspected by our forefathers, whose realization was heralded by presentiments and longings from century to century. Never has anyone lived on this earth who at the sunset of life did not have in his heart and on his lips the prayer of Faust: Give me back my youth! And this prayer, expressing bitter despair, deep remorse and keen longing for life, will from now on perhaps mean no more than a polite request addressed to the physician, without the accompaniment of temperamental emotion and freely accorded by the doctor without any special exertion.

Certain objections naturally are aroused in us. So violent an interference with the laws of nature is opposed to our natural sentiments. We object to an artificial rejuvenation; the bloom of life produced by medicine, the spring-time of life scientifically established call forth the same feelings as artificial eradication of wrinkles, the use of hair dyes and new-life belts. When this new and wonderful treatment at-

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tempts to reach into the very roots of the secret forces of nature, it strikes us at first like a cosmetic raised to the  $n$ -th degree. One associates it with alchemy and elixirs of life. Rejuvenation is surely a beautiful dream for the autumn of life's pathway. Who would not like to picture a restored youth as a sudden miracle, as a gift from heaven? But when the surgeon approaches and offers to make those dreams possible with his knife, common man experiences a sudden revolt and fears to circumvent the laws of existence, realizing a certain tragic beauty in his own transitoriness, and is ready to obey the old law of nature, that youth and love must have an end.

Still the perspective opened to our imagination is very seductive. It has often been said that our span of life has been curtailed. In the times of our forefathers men lived much longer. The length of life apportioned to us by nature is much greater than one usually assumes. But this power of longevity has been lost, and the limits of life are not constant. In the centuries of ignorance, on account of lack of hygiene and care of the body, the bloom of youth was quickly over, men aged rapidly and died early. But this has been changed without Steinach in the last few decades. Men are more vigorous and sound, because they live in general a cleaner and hygienically rational life. Much has been contributed by medical science, which has studied nature, solved many of its riddles, outwitted and conquered her. Why should not science be successful with its attempt at rejuvenation—why couldn't it improve upon nature? No mortal approaching death can repress this thought on surveying his life; of course, if I only could be young once more! Even the best of us recognize our life as a sketch and see our failures and omissions. If one could have youth again, one could be, so to speak, his own father, who helps his son with his own experiences and leads him and guides him. No single hour would pass without its usefulness, no feeling would be experienced in vain. Were only this possible, then he whose soul is clouded by the first appearance of fatigue could embrace life again as passionately as in his youth. The world would change, would become better, more beautiful and purer. Psychologists may explain to us what change there would be in the battle of youth and an age which has become young again. Men would have the choice of either living a short life, though rich and intensive, or growing old slowly. But those that felt their powers leaving them and feared that some work dear to them could not be completed, would have the chance of a new lease of life, and weariness would overcome them only when their work was done. What great advantage to the world, when persons of importance as statesmen, scientists, poets, artists and all others of such great usefulness could have their life intensified and remain active for years!

In view of the general interest in this matter I wish to present to you tonight the results of Professor Eugen Steinach's discoveries, as based on his new book, *Rejuvenation*; on some

of his previous publications, and on some of my personal recollections and recent reports from Vienna.

Seldom has there been a scientist who has worked as unselfishly at great sacrifice as Steinach. His career was the usual one of a scientist. He was born the son of a physician in Hohenems, Austria, in 1870, graduated from the University of Vienna, became assistant to the famous physiologist Hering in Prague, founded there an institute of general and experimental physiology, and became director of the Biological Academy in Vienna in 1912. In 1913, at the scientific congress in Vienna, his demonstrations of sex change in male and female animals created an enormous sensation, when he proved that by change of the puberty glands in immature animals he could change the sex characteristics. His book, which just recently appeared, owes its existence to the fact that Steinach lost all hope of being able to continue his investigations. For the past few years nearly all laboratory work in Vienna has ceased on account of lack of food and funds. Is it not tragic that poor Vienna, politically and economically ruined, reveals to the world a new theory of such wonderful possibilities? In this case Vienna is not the suppliant beggar, but the generous donor of a gift to the whole world. In its abject physical humiliation it conquers in the world of thought and science, and heralds a victory for the welfare of humanity.

Steinach has given to the world his discovery without reservations. Every surgeon can perform the operation, every radiologist can do as he did. His view is that such ideas as he presents are only foundations for further investigations; they are guideposts for the direction of physicians and scientists. According to his own words his book is only a prelude, and the curtain may fall now, while he or someone else is writing the next act to this drama.

Let me now attempt to give you Steinach's theory and its course of evolution. Since 1904 all his investigation formed only a groundwork for his theory, all his studies being directed toward one single organ, the generative glands and their influence on the entire organism. The problem of rejuvenation and its solution only appeared later in his investigations.

It is a well established fact that boys who have lost their generative glands do not develop into perfect men. In women whose ovaries have been removed on account of disease, it is common observation that their specifically female qualities disappear. Steinach drew the correct conclusion, that the existence of the generative glands is the cause of the development and maintenance of the specifically masculine and feminine attributes of body and mind, of the so-called secondary sex characteristics. The idea had been widely accepted that the lack of the productive parts of these glands, of the seminal tubules and Graafian follicles, was the cause of the nonappearance of growth and development. One of the first discoveries of Steinach was the principle that the cause of sexual difference between the male and the female does not reside



in the cell-producing generative organs, but that this function is exercised by certain cells which are found between these parenchyma cells. (In the male, the Leydig cells; in the female, the Lutein cells). An internal secretion is generated by those cells which is responsible for the sexual differentiation and later for the phenomenon of puberty. Steinach called these cells collectively "Puberty glands." The seat of this tissue in the generative organs need not astonish us, for next to hunger, love is the strongest impulse in our life. A shortsighted world has praised it to the sky or condemned it to perdition. Steinach finds in these organs the source of energy for the higher physical and psychic expressions. Steinach asked himself the question: Where does the inner secretion of the puberty gland produce its effect? As he has shown by experiments on frogs it acts on the central nervous system through the circulation, producing what he calls "erotization." The next question was: Is the inner secretion of the male and female puberty glands essentially the same or does it differ according to the sex? In other words, is it specifically male or female? The solution of this question was one of the cleverest of Steinach's experimental investigations. He reasoned as follows: If the effect of the male and female puberty glands is the same, then it must be immaterial, whether one implants testicles or ovaries into a castrated male; in both cases the body of the male castrate must develop into a perfect male. But if the effect is different, so to say sexually specific, then, in implanting an ovary, not the male but the female sex characteristics should develop. Likewise in a castrated female with implanted testicle the male characteristics ought to develop. Therefore if the effect of the puberty gland is sexually specific the sex characteristics of a castrated animal could be arbitrarily determined according to the generative gland which might be implanted. Following this line of thought, these experiments were crowned with success. Steinach implanted ovaries in the abdominal wall of young castrated male guinea pigs and rats, and testicles in castrated females. The results were the following: The sexual apparatus of the ovarial-male was not developed but remained infantile. This proved that the inner secretion which stimulates growth of the male sexual apparatus is not contained in the secretion of the female puberty gland. It even appeared that the sexual attributes of the ovarial-male did not develop as fast as they did in the simple castrate. Therefore there must be substances in the secretion of the female puberty gland which inhibit the development of the male sex characteristics. The entire build of the body resembles the female; smaller head, smaller circumference of chest, short and soft hair and the female mammary glands. If one gives young rats to those feminized males, they feed them, and show in this act as much patience, pleasure and attention, as one observes only in normal suckling females. The sexual impulse also is feminine. They

have no trace of male impulse, and do not pursue the female in heat. On the contrary they have attraction for the normal males. In other words, as Steinach says, they are erotically females. The testicle-females react in an analogous way. The implanted male puberty gland changes the whole organism of the castrated female in the male direction. The mammary glands are obliterated, the form of the body becomes male in pronounced manner. The soft fur is changed into the rough male hair, the testicle-females have sexually male impulses, they pursue the female in heat. Toward normal males they act with male individuality. Hence the nervous system of the testicle-female is erotically male.

According to these discoveries Steinach assumes that the entire disposition of the organism originally is sexually indifferent. Only after differentiation of the sexual glands is the sex of the embryo determined. If this differentiation is not sharply pronounced, that is, if besides male puberty glands there exist female puberty glands, we have intermediate sexual varieties, hermaphrodites in the widest sense. It was part of Steinach's investigations to produce hermaphroditism in animals experimentally. To this end he implanted simultaneously into young castrated rats, who, so to speak, were sexually neutral, both a testicle and an ovary. He permitted both puberty glands to battle for their existence, and the results were individuals whose bodily and psychic sex characteristics marked them as hermaphrodites. Depending on the growth of one or the other puberty gland, which could be demonstrated microscopically, there were periods of pronounced male or female sex impulse. These experiments proved the fact new to physiology that the central nervous system reacts definitely to the sex hormone, and that in any individual it can be eroticised either in male or female direction, depending on the deposit of the specific hormone. With this Steinach also proved that homosexuality is not an inherited or acquired mental disease, but a constitutional condition of bisexual character, caused by existence of a hermaphroditic puberty gland. In such an hermaphroditic puberty gland the male puberty cells predominate over the female puberty cells and at first there develops a male sex character with all its male marks. If later for any reason the male cells are temporarily stunted and their secretive function ceases, the female cells become active.

In pursuing this thought Steinach accomplished two important results, which have a bearing on the human side. Firstly he succeeded in proving microscopically a deviation from the normal puberty gland in that of homosexual males and secondly he and his assistant surgeon, Dr. Lichtenstern, have succeeded in curing by operation homosexual impulses in human beings. The sexual glands of the homosexual patient were removed and the sexual gland of a healthy and normal man was implanted in the abdominal muscle of the homosexual patient. The feminine characteristics of his body development disappeared and male characteristics took their place. Also in the realm of sex impulse



a complete change took place, and remained so permanently.

But not only in homosexuals have Steinach and Lichtenstern used this method of operation but also in a series of cases where the testicle, because of disease or accident, had lost the secretion of its puberty gland or where a congenital disturbance in its development had resulted in atrophy.

They investigated other ways of stimulating and increasing the efficiency of the puberty gland. Steinach and Holzknecht demonstrated a vigorous increase in the substance of the puberty gland after exposure to Roentgen rays. All the results of Steinach's which I have just presented, are to be found in two short pamphlets: "The puberty glands and their influence on sex determination", deposited with the Academy of Science in Vienna in 1912, and "Investigations about youth and old age".

Steinach had noticed in some cases a supernormally strong sexual excitement, hypermasculization, in animals in which the puberty glands were especially vigorous. This observation led him to the question: How does the inner secretion of the puberty gland comport itself in regard to amount and duration? He finally came to the conclusion that the puberty gland is not only the foundation of birth and being but also of death. That age has its first cause not so much in the wear and tear of the body organs as in the wear and tear of the puberty glands. Steinach in those animals, which he raised, which he knows and loves, and which he treats with utmost consideration in every manner as long as it does not conflict with the purpose of research, could accelerate old age, or could defer it, depending on whether he reduced the puberty gland or whether he stimulated its growth. He showed that it is possible to call forth the attributes of youth in an individual by means of stimulating the hormonal function of the puberty glands. Steinach made rejuvenation possible.

These experiments were made by Steinach on white rats, which he raised himself, and on crossbreeds of white rats with wild rats. Signs of old age appear in rats usually between the eighteenth and twenty-third month, the lack of sexual impulse being the best indicator. Besides there appears baldness on the scrotum and back. The sexual organs atrophy. Also the weight decreases, the emotional life of the animal changes, the old rat moves little, does not play and clean itself, does not fight with other males, eats little, is dirty and lousy and usually dies at the age of twenty-seven to thirty months. After ligation of one or both vasa deferentia in the space between the testicle and the head of the epididymis (*coni vasculosi*) a change in the animals appears in four to six weeks. They become lively, have appetite, the fur grows dense and shiny, their body is more rounded, they play and clean themselves, fight with their rivals and react toward females in heat as impetuously as one year old strong males. They procreate strong and healthy young, provided of course only one vas deferens was ligated. This condition lasts for seven to ten months, and life is

thus prolonged at least one-fourth of its normal duration. Similar were his observations with senile female rats. Here besides implantation of ovaries of healthy and mature females, he used Roentgen rays. These females also show a rejuvenation of their sex organs, mammary glands, they come in heat again, and bring forth healthy young. The second generation begotten by rejuvenated rats was healthy and productive, absolutely normal. Therefore Steinach concludes that the reactivation of the puberty glands leads to rejuvenation, procreative capacity and fruitfulness. The question whether this rejuvenation is synonymous with prolongation of life, Steinach leaves open.

Is a second rejuvenation possible? Up to this point only material from the own resources of the individual has been used to call forth rejuvenating effects by means of a puberty gland artificially renovated. Steinach calls this method "Autoplastic treatment of old age". But if this rejuvenated puberty gland becomes exhausted, Steinach, by means of implantation of young testicles, succeeds again in increasing the energy of life, and this he called "Homoplastic treatment of old age". A repeated implantation has so far not been attempted by Steinach. Improvement in the method by means of different combinations of auto- and homo-plastic methods, gradual progression from the ligature of one testicle, then ligature of the second testicle to the repeated implantation of young testicles with the object of postponing senility as long as possible, is the field on which further experimental study will have to concentrate.

The second part of Steinach's book treats of results with human beings. The effects of the relatively minor operation on the male, the ligation of the vas deferens next to the epididymis, resembled in all details the surprising results in animals: appearance, action, returning physical and mental abilities, regained memory, efficiency, libido and potency, regained happiness and vitality. In women, operation on the puberty glands has not been experimented with. Such an operation is not so simple, it means laparotomy; but the graduated raying with Roentgen rays of their ovaries has caused a vigorous redevelopment of their puberty glands. Many of the women treated in this manner soon showed a surprising freshness, they regained their youth, according to their testimony; their physical and mental vitality was restored as in youth, their skin became soft, and wrinkles disappeared from face and neck.

When we resurvey the eventual importance of rejuvenation for mankind, there appears no doubt that the individual gets a great advantage from it, for he gains in physical and mental vitality and in joy of life. It is another question, whether it is a gain for humanity at large. Further experience will have to show how large this gain is on the whole. Even if we could prolong for only a few years the experience and knowledge, the love of work and the efficiency of men in the prime of life, it would constitute a great mental and material achievement in the progress of humanity. This beacon light of hope we owe entirely to the modest, self-sacrificing ef-



forts of a genius like Eugen Steinach, who richly deserves the gratitude and admiration of the whole world!

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### THE BEST PAPERS FOR A SCIENTIFIC MEETING.

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In a gathering that consists of two hundred who have come to hear the paper, one to read it and three or four to discuss it, the interests of the hearers should determine the use that every reader or speaker makes of his time. The tastes, needs, physical endurance, and psychologic processes of the hearers ought to decide in the selection of a subject, the aspects of it set forth, the choosing of words to express the ideas, and the length of time occupied by every paper brought before a medical meeting.

#### Things to Avoid.

A scientific meeting is possible because speakers and hearers have a common language, common knowledge, common interests. We have studied medicine and our specialties from the same sources. Our common acquaintance with their facts, their literature, is the starting point for every reader's argument, the foundation on which every paper is to be built. The reader who takes up our time rehearsing what is already common knowledge, reading extracts from our common literature, whether in quotation marks or not, whether citing particular authors and books or not, is wasting our time and his own.

The laboratory worker, or the specialist outside the lines of our ordinary study, who undertakes to give out ideas that the mass of his hearers are not prepared to grasp and master, wastes our time and makes us tired. Perhaps the most

common sinner in this respect is the worker in pathology, who assumes that we know the significance of the terms he uses, when we do not. It may be that we ought to know their meaning; it may be because the great mass of us have never had that training in pathology we should have had, or are not keeping up our reading in collateral medical science as we should; but the fact remains that we are out of place listening to a paper we do not understand, and the reader is out of place reading it to us.

It is well to have our curiosity awakened, to be reminded that there are more things we ought to know. But too much "high brow stuff" bears in upon our consciousness that we are getting nothing out of it, and we go to talking with a neighbor, or slip out of the room, or go to sleep; and get a distaste for learning, for which we ought to cultivate our appetites.

The rule of reason applied to a paper read before a society meeting is, that from the one reading each hearer may grasp an interesting and important new idea. If the idea can only be grasped by mastery of statistical tables, or repeated readings, or by weighing prolonged, involved arguments, the presentation of it by the reading of a paper does injustice to the idea set forth, injustice to the writer, and, what is most important, injustice to the audience, that has given its time and effort to do something that under the circumstances can not be done. The idea may be important, valuable, interesting, if only we could grasp it. But if it cannot be "put over" in that way, don't try it.

Statistical tables, or long series of case reports, that get significance only by comparing one item with another, should never be read in a meeting. They may contain the concentrated essence of wisdom, but no one will ever recognize it from listening to them. Even the presenting of tables and graphs by means of charts or with the lantern is unwise, unless the picture can remain long enough for the audience to work out and master its details; either from the lettering on the picture, or from the deliberate detailed explanation given. To read a paper, and then rush through a series of pictures just to show that you have them, is an affront to those who are giving you the courtesy of a hearing.

Much that can be looked at and studied at leisure with interest and improvement, when we can go back and reread, or stop and think out the suggested line of argument, or grasp the implications of the statement, is mere nonsense to listen to or glance at.

Pictures should be used in connection with papers read before medical meetings more than they are now, but they should be strictly devoted to bringing out the point that justifies their existence. They should be few, simple, subordinated to their purpose; and each given time enough, with the accompanying explanation, to make clear the point they are intended to illustrate. Simple diagrams, especially such as can be drawn on a blackboard before the audience and explained as to each line or figure, are best. If it seems hardly worth while to arrange for a lantern exhibit of one diagram, it



is still less worth while to exhibit a half dozen that can only be glanced at and not explained.

### Be Brief.

Over every paper read before a medical society is the iron limit of time; enforced by the full program, the need of time for discussion, the number of subjects and speakers crowding each other for a hearing, the limit of time that busy practitioners can spend at these meetings, and the limits of human capacity to give close attention so as to assimilate new ideas. We all feel these limitations, when we sit in such meetings, as listeners, trying to reap the full benefit of the opportunity; but they need to be emphasized and enforced upon every writer when he is preparing his paper.

Limit your subject to one that can be adequately presented in the time rightly at your disposal. Usually limit it to the presentation of a single idea that you can "put across". Illustrate this, enforce it in every way you can, but all the time stick to your point as a wrestler would stick to his well-matched opponent. This need, to put time to its best use, is the reason for cutting out all "padding"; all display of cases that do not enforce the main point; all unnecessary details of negative or unrelated findings, most extracts from authorities and all unfruitful speculations that might indicate how much thought you have given to the subject.

Your point will penetrate farther, without the padding, as you can stab deeper with a stiletto than with a walking stick; the multitude of cases camouflage the one that would illustrate. Observe your cases, record your details, read most widely, lie awake at night and speculate indefinitely upon the significance of your ideas; and then bring your results, not your methods of arriving at them. It is a common fault of laboratory papers that they give too much detail of method. Such detail is bad enough when you have to wade through pages of it in a printed report. It is intolerable in a paper read before a meeting. Excess of detail is not confined to laboratory papers. It appears in clinical papers also, in details regarding every appearance and general condition of the patient, whether it has any bearing on the disease for which the case is reported or not. Let your hearers assume that you would have observed all these things if they had been present, and had any bearing on your subject. The unrestrained desire to tell all you know, to prove that you know it, makes you a bore in the medical society, just as it does at the dinner table or in the social club. Overcome it.

### What to Write About.

What subjects are likely to prove of interest in a medical meeting? First, unusual clinical cases. One of these, stripped of padding, can be presented in a few minutes. Carefully observed they furnish matter of interest to all who are likely to encounter such in practice. Supplemented by careful reading, not necessarily to quote but to get the general viewpoint of the profession, their important features can be emphasized so as to make the consideration of them of benefit to the hearers. Along cer-

tain lines, we never see two cases exactly alike; and the experience of any one practitioner should be supplemented by that of the whole profession.

But every case history should go on to include the final result, if you have to wait years for it. The history of the case that is reported to get somebody else to make a diagnosis, or before a full study has been made of it, is a nuisance in the literature. Case reports are easy to make if one keeps fair histories of his cases. They are common in the literature, but of good ones there is no excess.

Less common and more needed are good papers on common diseases. The dangers are that they will not bring anything new to their hearers, and that they will try to cover too much of the subject in one paper. Papers and discussions on cataract too often exhibit these faults. There is a great deal of interest about cataract, there is a great deal to be learned about it. But there is also a great opportunity for text book repetition and wandering discussion regarding it. The paper that will be listened to will confine itself to one small, definite phase of the general subject; and will give experience or ideas regarding it not to be found in the text books.

Special therapeutic and diagnostic precedures are always of interest, if presented clearly without undue elaboration, and without any effort to occupy more time than is absolutely necessary. A point in therapeutics, definitely presented, will always get attention. Somebody has a case in mind for which he welcomes the suggestion. All are interested. With diagnostic procedures, there may be more need to emphasize and illustrate and explain. An advantage of the paper read to a meeting over the paper printed is the opportunity to answer questions and supplement what has been written, or to illustrate it by actual application. In so far as this may require additional time, economic use of time must be the more rigidly kept in view, in preparing the paper.

Truly original investigations do not generally furnish the best subjects for these papers. When common professional experience and knowledge are departed from, too much detail and explanation are required to make the new subject intelligible. A very brief statement of purposes and results, calling attention to the more detailed account, is the wise policy with reference to such matters. Do not think that you ought to occupy an amount of time proportioned to the importance of your subject, as you see it.

One other point about the best papers for a meeting: they must have variety. Each paper should stick to its particular point, and the discussion on it be confined to its subject. A whole session may be devoted to related subjects. But in a meeting lasting two or three days, a variety of subjects should be considered. This is needful because of the variety of interests that appeal most strongly to different members; and also to keep fresh the interest of the individual mind by change of the direction of activity. A change may be a rest secured without loss of time. So far as a variety of subjects can secure



this, it is to be aimed at. Any appropriate topic, that can be presented within the limitations of time and endurance that apply to a meeting, may be made the subject of a paper. It should not arouse unfavorable comment because the subject is out of the usual line.

Once more to emphasize: stick to the point; cut out all padding; write and rewrite to secure brief, clear statements; avoid all preliminary remarks, and stop while much remains that might be said, but when attention and interest may begin to run down.

#### **CERTAIN ASPECTS OF GASTROINTESTINAL DYSPEPSIA SUGGESTED BY MORE RECENT METHODS OF STUDY.\***

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The complaint of "stomach trouble" of some form or other is very common in the vast majority of cases coming to the physician or surgeon. The digestive disturbance is frequently looked upon as a necessary evil accompanying some other trouble, and is therefore passed over lightly with the thought that it will soon clear up. Fortunately this is true in many instances, but it is also true that these and the more severe cases could derive much help, were they given a little more careful study.

It has been aptly said that the stomach is "spokesman for all the abdominal viscera", and it has also been said that a gastric analysis is a useless thing, but both these statements are liable to be misleading. Truly enough the stomach is the "spokesman", but it frequently also becomes a direct source of trouble as a result of changes in its own functional ability. These changes are at present explained and classified as follows: first, those due to a reflex from mechanical trouble elsewhere; second, those due to toxemias, and, lastly, those due to psychic influences, whose effect has long been recognized by the medical profession. All of these causes are without doubt capable of interfering with hormone action through their effects on the pituitary, thyroid, adrenal and pancreas, but whatever the cause the changes in the stomach and intestine eventually become so definite that they in themselves require and demand careful study and treatment.

In regard to certain statements as to the uselessness of gastric analyses, we believe that anyone who makes such a statement has either failed to make a proper analysis, or has failed to interpret the findings. It is possible, too, that a mistaken notion exists in the minds of many regarding the difficulty of making the various tests which may be necessary to determine the character of gastrointestinal disorders. We, therefore, outline in some detail the methods which may be followed by anyone having laboratory facilities and a little time. The methods are not in any sense new or original, but are merely simplified to a practical basis within the reach of all.

The studies are divided into two groups, first, the fractional stomach analysis and, second, the study of the intestinal residue.

It seems natural to begin with the study of gastric digestion. The patient is given, preferably in the morning, two slices of toasted bread from which the crusts have been removed, and a full glass of water. Thirty minutes later the patient is assisted in swallowing the very small Rehfus or Jutte tube and a small amount of stomach contents removed by suction. This introduction of the tube seems to be the one great objection, both to patient and physician, to this line of work, but we wish to emphatically state that it is far less annoying to the patient and consequently more likely to be successful and satisfactory in its results than the older method of using the larger tube. To be sure, the fractional removal and analysis of the contents takes longer but its accuracy and completeness more than compensate for the extra time utilized. After taking the first sample, as above described, an interval of fifteen minutes intervenes before the second sample is withdrawn. A small amount is then withdrawn and tested every fifteen minutes until the stomach is empty. The information thus acquired is far more complete than that of the older methods, and gives one a clearer understanding of what the stomach is doing all during the period of gastric digestion.

It is not our intention to give in detail the symptoms and differential diagnosis of the various gastrointestinal diseases. This has been sufficiently dealt with by many others. We would, however, call attention to the fact that many subjective symptoms which in the past have been regarded as of great value in differentiating some of the types of gastric disease, are sometimes of little value except when considered in the light of information gained from gastric analysis. For instance, epigastric pain coming on immediately after meals is commonly looked upon as strongly indicative of peptic ulcer, but it occasionally happens that such pain is the direct result of lack of hydrochloric acid in the stomach secretions and is promptly relieved by administering fifteen to twenty drops of the dilute acid after meals. Belching is usually looked upon as a result of fermentation of food from a lack of hydrochloric acid but it not infrequently happens that a test breakfast will demonstrate a definite hyperacidity. Sour stomach is often considered to be due to the excessive secretion of hydrochloric acid, but the analysis of the stomach contents will frequently avoid the error of such a supposition and demonstrate the presence of acids from fermentation; and, naturally, such a stomach will be greatly benefited by proper use of hydrochloric acid.

Many cases of gastrointestinal indigestion are without question due to some intraabdominal lesions which in themselves are best relieved by surgery, and in the vast majority of instances the indigestion is coincidentally cured. A certain number of cases remain, however, which although usually improved by operation, continue to show symptoms of indigestion and it often

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falls to the unenviable lot of the internist to follow these cases a variable period. It is not necessary to include in the present consideration the cases based on malignancy. The remainder may be divided into three classes. First, are those in which the original condition has produced a definite reflex abnormality of the gastrointestinal function which has become a habit, this habit persisting in some degree long after surgery has removed or corrected the original offender. For example, chronic appendicitis frequently causes gastric subacidity and it is not at all uncommon to find, after appendectomy, that the patient suffers from repeated attacks of indigestion which are due to recurring states of subacidity. Second, there are cases occasionally seen which continue to have symptoms after operation because the original digestive disturbance was due to several causes, not all of which were taken care of at one operation, or because of the rapid development of new sources of reflex irritation quite as deplorable as the original. Such conditions are fortunately rare, but they do occur and they tax the internist severely; for, as a rule, he must convince the patient and perhaps the surgeon that a second operation is necessary. And third, a large number of cases occur in which the gastric symptoms are due to reflex irritation from the intestinal tract itself. In these cases it happens that treatment of the stomach as based on gastric analysis is without results, but an analysis of intestinal contents indicates a treatment which not only relieves intestinal distress but gastric as well.

Realizing the fact that the most troublesome and disagreeable feature of gastric analysis is the actual passage of the tube, we are in a position to state that the use of the small tube gives only very little inconvenience which cannot compare in any way to the disagreeableness of the older, larger type of stomach tube. In our laboratory it is customary for the patient to read the morning paper or some current magazine while the tests are being made with the tube continually in situ. A few illustrative charts will quickly show you the greater accuracy of the method which Rehfus devised and presented some six years ago, for they will conclusively prove in many cases that the contents removed at forty-five minutes after the prescribed breakfast, which is the usual time for removal in the older methods, do not give a true picture of the character of gastric digestion. It is a mistake to feel that the newer method requires elaborate equipment, many assistants or unlimited time, and the same is true in regard to the study of the intestinal residue.

Fractional analysis makes it evident that some stomachs manufacture hydrochloric acid early in digestion, in fair amounts, but soon stop; others produce large amounts, but the process is much delayed. Mucus appears early in one case and late in another, sometimes occurring in cases of hyperacidity and at other times in cases of subacidity. In each instance there are suggested pertinent facts in regard to the time for administering therapeutic agents.

As a preliminary to the consideration of the

intestine as a source of disturbance it is well to review in a general way the microorganisms of the intestinal canal. In doing this, the work of Park and Williams has been followed closely.

The alimentary tract both as regards food-stuffs, varying degrees of oxygen tension and reaction gives so many different conditions for growth that many varieties of organisms find an optimum environment at some level. Thus, in passing from the mouth where the oxygen tension is high, the food eventually reaches the intestine where the tension becomes lower and conditions favorable for anaerobes exist. The degree of digestion of the food and the proportion of undigested protein and carbohydrate at different levels will influence the flora, as will also the products of bacterial growth on one level being carried down to a lower one. These are the principal conditions influencing microbial development.

The importance of the intestinal flora as being of physiological advantage to the host is open to question. Successful experiments in raising animals with a sterile intestine tend to show that they are not absolutely a physiological necessity. The character and balance of the flora seem to act as a protection under some circumstances, being antagonistic to the implantation of an exogenous pathogenic type. Abnormal variations in the dominant type may, however, be the basis of intestinal symptoms. In one sense, part of the intestinal flora is a menace to the host. The intestinal mucosa is a partial obstacle to the passage of microorganisms into the blood, lymph or tissues. A few, however, evidently escape, as frequent localization in the gallbladder, kidney and elsewhere shows. This may occur constantly in small numbers, but because of their slight virulence or due to the resistance met, the microorganisms are promptly disposed of.

The development of the intestinal flora begins shortly after birth, the meconium being sterile unless fetal infection has taken place due to a general infection of the mother. This development as to kind is dependent upon diet; the breast fed and artificially fed infant, as well as the adult, considering the dominant type, have a somewhat characteristic flora.

The flora at all times is basically dependent upon the diet. Thus, in an infant, whether breast or bottle fed, the carbohydrate is sufficient to supply the conditions for growth of the essentially fermentative types. These, because of their acid production, limit to a marked degree the multiplication of the other types, especially the proteolytic types. If, however, the protein elements of the diet are increased, a relative or marked suppression of acid-producing types with an increase of the proteolytic type occurs, approximating the flora of the adult.

Apart from the well known diseases such as typhoid and dysentery, where pathogenic organisms become the dominant type, there are other morbid conditions, which, although of doubtful etiology, are intimately associated with changes in the intestinal flora, even if these changes are not of great etiological importance. These can be divided into three groups according to wheth-



er the products of bacterial proteolysis, the products of carbohydrate fermentation, or both, are at fault. The last is least understood.

On this basis we have attempted to influence these conditions. Cathartics, intestinal antiseptics and starvation have no appreciable beneficial value. Change in diet, so adapted as to limit or supply the optimum foodstuff for certain types, is apparently the most important controlling factor. Not all carbohydrates have the same value in such a proposed change. Lactose and dextrin have been found by experiment to be most effective. Proteins likewise differ in their effect on the putrefactive flora. Those of milk are less likely to increase the flora than those of meat. Vegetable proteins seem to have no effect. Metschnikoff's sour milk therapy was an attempt to modify the flora through the ingestion of lactic acid bacilli and their products. It is doubtful if this organism ever becomes acclimatized to the intestine. In conditions of toxemia, the limitation of proteins with liberal drinking of sour-milk acid preparations is beneficial. In special types of fermentative diarrhea in children the liberal use of acid buttermilk and a carbohydrate-free diet will be beneficial.

To digress for a moment to a consideration of diet in specific intestinal infections such as typhoid and dysentery: the presence of available carbohydrates may have an important bearing on the kind of products resulting from bacterial action, and thus in turn on the disease. It is a fact that the patient with either disease will utilize carbohydrate in preference to protein. There is no evidence that the products formed from carbohydrate cleavage are any more harmful than those formed by nonpathogenic flora, and the acid produced would limit the further growth of the causative bacilli. A free carbohydrate diet should be valuable in these diseases, not only to spare protein and the toxemia resulting from its cleavage, but to increase activity of the aciduric types and thus limit the multiplication of these special types. Coleman and Shaffer have not only demonstrated that the nitrogen and weight loss are decreased with the high calory diet in typhoid fever, but that the toxemia is reduced materially. Liberal feeding of lactose in dysentery has yielded similar results.

The long list of conditions dependent upon gut toxemia you are all familiar with. That with which we are particularly interested is the effect of gut conditions on the stomach secretions. Bassler states that forty-one percent out of a series of over four thousand cases coming in with gastric symptoms are instances of symptoms due to intestinal conditions and not primarily to any errors in the stomach itself. Of such, most were of the hyperacidity type. He concludes that hyperacidity as a pure gastric condition is rarer than supposed, although the symptoms of pyrosis and acid regurgitation, and the relief by alkali or the taking of food, are quite common.

Other conditions worthy of mention in consideration of intestinal toxemia are adrenal insufficiencies, asthma and anemia.

It becomes evident at once that changes in the nature of the gastric secretions, giving rise to gastric indigestion, that are dependent upon intestinal disorders, cannot be treated wholly as gastric with any degree of confidence in the results. This conclusion raises the question as to how we are to determine in a practical way what sort of a condition exists in the intestine. Several methods and schemes have been advocated and used. The one based upon diet is the simplest. Another is that of combining diet with such measures as will regulate or combat the dominant type of organism through the use of antagonistic cultures of intestinal flora, administered alive by rectum and subcutaneously as vaccines. The latter method is difficult, and so far we have not worked it out to our own satisfaction. The first method, that based upon diet, is the one which we wish to present and recommend. We do so in all humility, since our results are only encouraging, not brilliant, but we believe that half a loaf is worth eating.

In those cases presenting themselves for gastrointestinal study in which intestinal symptoms are present, or in which an intestinal condition is suspected, the following intestinal diet is utilized:

Breakfast—Gruel and milk.

Dinner—Beefsteak, potato and bread.

Supper—Gruel and milk.

If actually required, milk may be taken at mid-morning or afternoon or both. This diet is continued for three full days. On the morning of the fourth day a small sample of feces is collected. No medicine or cathartics are to be used during this period, and if necessary a small low enema will secure the proper results. The diet must be strictly adhered to as a standard upon which the results are based. It is fairly well proportioned in protein and carbohydrate.

After noting the color, odor, and consistency, a small quantity of feces is placed in a large test tube and sufficient distilled water added to thoroughly liquify. To this is added a few drops of alizarin indicator solution, and it is then allowed to stand for a few hours at room temperature or preferably in an incubator. At times it may be advisable to allow it to stand over night for a more definite reaction. In fact, we usually do so. At the end of this period the color gives us the reaction. Normally the reaction is amphoteric or thereabouts, in which case the color of the supernatant fluid is pinkish or only faintly colored. Those of a strong alkaline reaction are purple, and those of the acid reaction yellow. This is the best indicator because the majority of abnormal stools and those closely approximating the normal are alkaline, the difference being in degree, and this indicator, by virtue of its color changes, best lends itself to use. A drop of the liquified stool is smeared for staining. On account of the large numbers of organisms the smears must be thin and uniform. These are stained by Gram's method and placed under the microscope. In normal stools the relation between Gram positive and Gram negative organisms is well fixed for practical purposes, since there are three Gram negative organisms to one Gram positive.



With a little practice an estimate may be quickly made.

Obviously there are three distinct categories under which a stool may be classified. It may be normal with a slight alkaline reaction to alizarin and a normal appearance and color; or it may be putrefactive or indolic with a strong alkaline reaction, putrid odor and dark appearance; the third type is fermentative with a definite acid reaction, fluffy and yellowish in color, with a sour odor, often that of butyric acid. The latter is called the saccharo-butyric stool, in contradistinction to the indolic or putrefactive type. The importance of the stained smears is purely relative, and if the study and subsequent treatment are to be based on diet alone it becomes more a matter of interest than a thing of practical importance. On the other hand, any marked deviation from the normal percentage, or relationship of Gram negative to Gram positive organisms, tends to confirm the results already recorded. Alone it is of limited value, as in either type of stool both Gram positive and Gram negative flora are present; although it is true that in a frank putrefactive stool many Gram organisms, particularly bacilli, are in evidence.

The best accredited military experts act upon the assertion that an invading army moves upon its stomach. Where at all possible a campaign is waged against the army's base of supplies. We attempt to parallel this in our treatment of these cases. In these days of liberal protein diet, and especially meat, it is not at all surprising that a large percentage of cases fall under the indolic category, which makes it possible for a putrefactive type of organism to dominate the intestine. If allowed to persist it can in time provoke considerable trouble, even to gaining a foothold in the mucous membrane of the intestinal wall and there forming ulcerations and successfully resisting removal by ordinary means. It is these cases that will be benefited by a diet which is unsuitable for the growth and well being of the invader. The best diet is one from which meat proteins are withheld, the patient being permitted to have milk and vegetable proteins and a carbohydrate diet rich in lactose and dextrin. Sour milk preparations may also be added.

The fermentative type seen most often is usually accompanied by diarrhea and requires a carbohydrate-free diet and plenty of proteins. It should be remembered that preformed acids introduced from without, such as sour milk and buttermilk, have in them, by virtue of their acidity and acid-forming constituents, the ability to limit very materially the multiplication of organisms that will form acids from the cleavage of carbohydrates. While these same organisms will thrive as long as carbohydrates are present, in spite of the acid formed therefrom, they do not find the lactic acid products, such as are present in sour milk, conducive to their further reproduction. The protein material will permit the growth of flora which are in themselves, and in their products of protein cleavage, antagonistic to the growth of this type.

Other therapeutic agents may be used as in-

dicated. Constipation should be controlled as far as possible by a suitable diet. Mineral oil should be of considerable value since it has been shown to possess the property of taking up many of the products of protein cleavage and thus preventing their absorption. In the face of well pronounced cases of intestinal toxemia, the transduodenal lavage, composed of a liter of one percent solution of sodium sulphate and sodium chloride, as recommended by Jutt, will be beneficial. While colonic irrigations as a routine are of doubtful value, the badly congested colon will be benefited by the use of instillations of five percent gelatin solution.

At such a time as our experience warrants we hope to supplement the dietary treatment with the use of antagonistic cultures and vaccines. One of us not only has personal knowledge that such methods are advocated and within the possibility of application, but can vouch for the results obtained. Our difficulty up to the present time has been to reduce the procedure to a working basis for practical use.

In concluding we are reminded that at one time all gastric disorders were supposed to be due, almost entirely, to improper action of the stomach and gastric juices. Later, mechanical causes were recognized. We realize that intestinal digestion will be influenced by the condition of the food poured into it from the stomach, but the less obvious fact is that many gastric disturbances are primarily due to an underlying intestinal trouble. In a given case it frequently becomes necessary to correlate all the findings and thus harmonize the various lines of treatment on a basis of a composite picture obtained from the gastric and intestinal analysis with the x-ray studies and physical examination. Sources of reflex irritation and habit must be removed; postural defects corrected; ptosis relieved by suitable abdominal support, so as to favor natural drainage and secure normal innervation; infected teeth repaired or removed; hydrochloric acid furnished when this is found wanting or alkalies given if indicated; and such a diet arranged as will tend to favor, on the part of the abnormal intestine, a return to a normal balance of its flora, thus preventing the products of excessive putrefaction or fermentation, as the case may be, from further exercise of their baneful influence.

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**Vaccination Against Influenza:**—Prophylactic vaccination against influenza was practiced extensively during, but mostly following, the recent epidemic of the disease. In some districts stock cultures were employed; in others a culture of the strain or strains isolated during the epidemic, and in still others a mixed vaccine. McCoy presented his impression, as gained from the uncontrolled use of these vaccines, that while therapeutically they might be of value in the prevention of influenza, yet in every case in which they were tried under perfectly controlled conditions, they failed to influence either morbidity or mortality. In an elaborate study, Jordan and Sharp conducted observations on approximately six thousand persons. About one-half of these were vaccinated with a saline suspension of a standardized mixed vaccine; the remaining half were not vaccinated. The influenza attacks among the vaccinated number 4.1 percent; among the unvaccinated the morbidity from this disease was 4.8 percent. (Jour. A. M. A., May 28, 1921, p. 1503).



## COMPLEMENT FIXATION IN TUBERCULOSIS.\*

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Gentlemen: May we have a few minutes of your attention to discuss complement fixation in tuberculosis? It is not our purpose to report any one series of laboratory tests and then attempt to correlate them with clinical observations; rather we propose to review the subject from an immunological and serological point of view and to discuss its various phases as fully as the time allotted to us will permit, and because of the brevity of time we must of necessity pass hastily over some points that really merit greater consideration.

Complement fixation is a reaction belonging to the immunological class of antibody reactions. In this group of biological phenomena there are lysis, precipitation, agglutination, complement fixation, deviation, etc. These are demonstrable antibody phenomena. They are frequently associated with the specific agent of immunity in their respective disease complexes. This, however, is not necessarily so. They are undoubtedly related to the immune processes but there are also other antibody substances which have not as yet been defined and which cannot be displayed with the exactness of these mentioned.

Where one of these easily demonstrable antibodies exists in a given disease, such as the agglutinins in typhoid fever, its presence is made use of in the diagnosis of the disease. However, in certain other infectious diseases the antibodies are not clearly demonstrable; yet from our general conceptions of infectious diseases there is reason to believe that the so-called immune bodies do exist in some biochemical form. It is in these instances that an indirect method is made use of to demonstrate their presence and this method is complement fixation. The earliest observation on antibodies might be stated to be that made by Hunter, the English physician, who noted that unheated blood on standing did not putrefy as readily as heated. This observation paved the way for numerous others and in 1894 Pfeiffer reported a phenomenon which bears his name. He noted that in a guinea pig which had been injected subcutaneously a number of times with cholera vibrio and subsequently given an intraperitoneal injection of these organisms there resulted granular changes and lysis in the intraperitoneally injected organisms, which changes did not occur in the organisms injected into an animal which had had no previous inoculations. Metchnikoff and Bordet in 1895 demonstrated that this lysis occurred in the test tube if the organisms were mixed with the serum of an animal which had been given several injections of the cholera vibrio. Bordet in 1898 elaborated on

this work and demonstrated that red corpuscles would likewise undergo lysis both in animals and in the test tube providing the animal into which the red blood cells were injected or from which the serum was drawn had previously been inoculated on successive periods with homologous red cells. He also demonstrated that in a typical *in vitro* hemolysis, three constituents were necessary: the specific red blood corpuscles which had been injected into the animal for immunizing purposes, the serum of the animal that had been injected with these red blood cells, and thus become immunized, and the constituent found in all normal serums previously discovered by Buchner and called alexin by him, now called complement. Here is the formation of a hemolytic system that is quite specific and quantitative in its reaction—the antigen or substance injected into the organism to cause the formation of specific antibodies; the specific antibody formed by the injection of the antigen; and the complement, a non-specific but essential part of the hemolytic system found in all serums although present more in some animals than in others.

Neisser and Wechsberg in 1901 described a phenomenon which bears their name. They showed that complement not only acts quantitatively in being fixed, but in contradistinction it can be deviated; that if a small amount of immune serum be added to normal serum it renders it more bactericidal, but a greater addition of immune serum robs it of most and sometimes of all of its bactericidal power, because the excess amboceptor combines with the complement and prevents its use for the lytic system.

These are the principles upon which the complement fixation reaction as employed today is based. In the earliest work that was done on complement fixation, bacteria were used as antigens, but it was soon realized by Wassermann and Bruck, in 1903, that the bacterial extracts could be successfully substituted for whole bacteria and that they had a number of distinct advantages over bacterial emulsions because the latter often fixed small amounts of complement themselves. Wassermann and Bruck were amongst the first to study complement fixation in tuberculosis and as early as 1903 regarded it as impractical. In 1905 Schaudinn and Hoffman announced the discovery of the spirochaeta pallida, and Wassermann, who had been working on complement fixation, applied himself to the study of syphilis and in 1906 published his results together with Neisser and Bruck. They used as antigen saline extracts of syphilitic tissues of monkeys. They assumed that the reaction was based on specific antibodies, but we know today, due to the work of Marie, Levaditi, Landsteiner and others, that the Wassermann reaction is a so-called "lipotropic" reaction and can be obtained with a great many normal organ extracts, especially the fatty portions. It is rather interesting that the specific antigen prepared from cultures of spirochaeta pallida is not highly successful.

The first application of complement fixation in tuberculosis was made by Widal and Le Sourd<sup>1</sup> in 1901. They obtained fixation of

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complement in certain cases of tuberculosis by using an antigen made of suspensions of human tubercle bacilli. In 1903 Bordet and Gengou<sup>2</sup> demonstrated the presence of a so-called antibody capable of uniting with tubercle bacilli and fixing complement in the sera of tuberculous animals.

Let us digress for a minute to compare tuberculosis with some other infectious fevers with reference to the presence of so-called immune bodies. Tetanus produces a toxin of extreme potency and two forms have been identified, a neurotoxin or tetanospasmin and a tetanolysin; none such exist in tuberculosis. Diphtheria produces a very potent toxin, a very small amount of which is fatal to the guinea pig; tuberculosis produces no such toxin. Rabies produces a toxin whose potency can easily be increased or diminished by certain cultural procedures; tuberculosis produces no such toxin. Typhoid fever produces specific antibodies—agglutinins which are specific against the cultures of typhoid bacilli in a dilution of 1 in 2,500; in tuberculosis the agglutinins occasionally reach a strength of 1 in 50, but these agglutinins are not always present in the blood of tuberculous individuals and frequently they occur in normal sera. There is not sufficient evidence on hand to regard them as being identified with immunity in tuberculosis if any such immunity exists at all. In pneumonia and epidemic meningitis there are specific agglutinins against the various types of the respective organism; in tuberculosis thus far no one has demonstrated a specific agglutinin against the human tubercle bacillus that will not in the same dilution agglutinate the bovine bacillus. In certain infectious diseases one attack is generally regarded as conferring a permanent active immunity; in this group are typhoid fever, scarlet fever, small pox, measles, syphilis and others; this is not so in tuberculosis, all forms of contact with the disease rendering the organism only more susceptible to it. In certain other infectious diseases, an active or passive immunity can be conferred by the injection into the host of a suitable vaccine or its derivative products; in this group are smallpox, rabies, typhoid fever and to a slight extent diphtheria; no such immunity can be conferred in tuberculosis.

There yet remains to be demonstrated a single method of conferring active or passive immunity in tuberculosis in human beings, although every possible method has been tried. Dead cultures of all strains and all varieties have been tried as a basis of a protective vaccine; so have living bacilli of both virulent and attenuated cultures been tried; the tubercle bacilli and their products have been chemically split and divided in every conceivable way. There have been made water soluble extracts and alcohol soluble extracts, saline extracts and glycerine extracts, the bacilli have been used whole and macerated, triturated and inspissated, and we are just as far today as our ancestors were in the days of Hippocrates in the matter of conferring immunity by any form of biological product which may be administered to hu-

man beings. We are inclined to state quite definitely that there is no way of conferring antibody immunity in tuberculosis; nor does one attack of the disease protect the organism against subsequent attacks; in fact, the reverse is more likely to hold true. Every form of contact with this disease only renders the subject more susceptible to it.

From an immunological point of view we are inclined to follow others who state that there are no demonstrable immune bodies in tuberculosis; yet from a general biological point of view we are forced to conclude that there must be some form of biochemical protective mechanism or else we should all be dead of the disease. Just what this biochemical protective mechanism is we don't know, but we feel that it is not antibody protection as we ordinarily understand immune phenomena. When we find out, it will be only a short time until we establish a chemotherapeutic specific against the disease. Some day we hope to identify these agents.

To get back to our subject, it is this biochemical protective mechanism or portions of it that we demonstrate by the indirect means of complement fixation. From 1906 to the present day probably one hundred antigens have been tried. In 1913 Frazer<sup>3</sup> tested a large number of antigens and concluded that the one prepared from human tubercle bacilli was the most reliable. The one she preferred was a fresh suspension in physiologic saline. The absence of antibodies she believes accounts for the low percentage of positives that she obtained (42.3%). Craig<sup>4</sup> used an alcoholic extract of bacilli alone. His results are exceptional, 96.2% positives in active cases, 100% negatives in nontuberculous cases, and less than 2% in syphilis. Numerous writers have declared that alcoholic extracts are impractical, reasserted recently by Lucke<sup>5</sup>. Such results as reported by Craig are nothing short of phenomenal; unfortunately, however, the test does not give these results in the hands of other workers.

In 1916 Corper<sup>6</sup> described an autolysate antigen which was prepared by autolyzing tubercle bacilli in physiologic saline for ten days at incubator temperature. The supernatant clear yellow autolysate was found to contain antigenic properties equal to those of a bacillary emulsion prepared from the same cultures; further, the autolysate possessed the advantage of having wider ranges between its antigenic and anti-complementary unit. Also in 1916 Miller<sup>7</sup> reported his observations with a new antigen prepared by grinding tubercle bacilli with dry salt and diluting to isotonicity, and reported 98% positive results in active tuberculosis while arrested cases gave only 10% positive results. These results also appear phenomenal but, again, could not be verified by other workers. In 1917 Corper and Sweany<sup>8</sup> compared the autolysate and Miller's bacillary antigen and found very little difference between them. They concluded that it was impossible to differentiate active from inactive tuberculosis. Then came Petroff<sup>9</sup> of Saranac Lake, devising four distinct antigens, a potato broth filtrate, a sodium hydroxid



extract of tubercle bacilli, a methyl alcohol extract and a glycerol extract, which he then mixed all together. He maintains that in order to get good results a variety of antigens should be used. This rather reminds one of the old time gun shot prescription where several extra drugs were incorporated in a medicament with the hope that one of them would hit the mark; but it hardly savors of true scientific reasoning. He and Brown<sup>10</sup> report 72% positives among 478 patients diagnosed tuberculous; 92% positives among patients having tubercle bacilli in their sputa. Miss Lange<sup>11</sup> of Johns Hopkins, using this antigen and also Miller's bacillary antigen, was not so successful and obtained only 51.5% positives in clinically diagnosed tuberculous persons. Now comes Von Wedel<sup>12</sup> with some new conceptions of immune phenomena. Using Wilson's antigen, which is a bacillary antigen with the ether-alcohol soluble fraction removed, and employing this in the usual manner, he obtains only a limited number of positives, but when he allows the serum of the patients to stand one week prior to testing he obtains one hundred percent positive reactions. He does not say very much about anti-complementary properties, so we presume that he overlooked the fact that serums have a habit of becoming anticomplementary if permitted to stand forty-eight to seventy-two hours, much less one week, and in such state will cause inhibition of hemolysis whether tried against a luetic antigen or tuberculosis antigen or no antigen at all. Needless to say, Von Wedel has found no supporters in his conceptions; as a matter of fact, Young and Givler<sup>13</sup> have shown that in the Wilson antigen the alcohol-ether soluble fraction is the valuable part of the antigen and yet this is discarded according to the Wilson formula.

Now then, just what good is complement fixation in tuberculosis? Has it any place at all in the diagnosis of this disease?

We reproduce here a chart from Young and Givler's article which we regard as a fair report and judgment upon complement fixation in tuberculosis. These authors were not interested in boosting any one antigen; they used three distinct ones: Petroff's mixed antigens, Wilson's bacillary antigen with the alcohol-ether soluble fraction removed and Corper's autolysate. Just an extra word about Corper's autolysate. This is not a mere aqueous extract of unknown and vague properties. Corper gives us some interesting data concerning the autolysate. First there is a liberation by the tubercle bacilli into the saline solution of non-coagulable nitrogenous substances, second there is a liberation of amino acids into the autolysate, then there is a liberation of antigenic substances, and this is coincident with the liberation of non-coagulable nitrogen; further there is present a trypsin-like proteolytic enzyme which is active in alkaline solutions and appears capable of splitting casein; there is present a pepsin-like proteolytic enzyme active in acid solutions capable of liberating amino acid alpha nitrogen; there is present an erepsin-like enzyme capable of splitting peptone;

nuclease is present—a nucleic acid splitting enzyme; urease is present—an enzyme capable of decomposing urea; but he was unable to demonstrate diastase, invertase or the enzymes capable of digesting elastic tissue and connective tissue. Young and Givler divide their cases into normal, normal with Wassermann positive, questionably tuberculous, incipient, moderately advanced, far advanced and moribund. The serum of each patient examined was tested against the several antigens simultaneously and this of course is a satisfactory comparison. It is not surprising to learn that the same antigens in the hands of different workers give different results even though tested against large series of patients, because there are so many variable factors which enter into the experiment—there may be for example different types of patients; there are so many points in technic that are subject to the human equation; we know that even a changing barometric pressure and a varying relative humidity alter the speed of immune phenomena—but by running the several antigens simultaneously, a great many of these variable factors are eliminated and the antigens' true value appears by comparison; also a fair average of the value of complement fixation itself is determined.

Results of the examination of normal, tuberculous and serologically luetic reacting individuals, using various tuberculosis antigens:

Using various tubercle antigens.  
(Givler and Young)<sup>13</sup>.

	Antigens							Av. Pct. Posi- tive
Classification	Corper		Wilson		Petroff		Not Ex- am'd	
	+	-	+	-	+	-		
Normal .....	11	86	12	85	8	61	28	11
Normal with + Wassermann..	13	6	10	9	4	4	11	60
QUESTIONABLY TUBERCULOUS								
Without symp- toms or rales	7	2	6	3	6	2	1	58
With symptoms or rales .....	16	12	16	12	11	13	4	
With + Wasser.	2	0	2	0	1	0	1	
INCIPIENT								
Without symp- toms or rales	4	7	4	7	1	1	9	56
With symptoms or rales .....	47	26	40	33	11	9	53	
With + Wasser.	12	3	11	4	1	0	14	
MODERATELY ADVANCED								
S p u t u m + cases .....	33	13	29	17	12	7	27	66
With symptoms or rales .....	75	37	65	47	40	15	57	64
With + Wasser.	16	1	12	5	1	1	15	
FAR ADVANCED								
With symp- toms .....	10	4	11	3	10	4		71
Without symp- toms .....	5	2	4	3	5	2		
Moribund .....	4	6	5	5	5	5		
Totals on defi- nite cases of pulmonary tu- berculosis with n e g a t i v e Wassermann..	145	82	129	98	72	36	119	
Percentage pos- itives among tuberculous ..	63		57		66			

These writers conclude that the three antigens did not differ greatly in the percentage of positive findings in known cases of pulmonary tuberculosis, Petroff's antigen giving 66%, Corper's autolysate antigen 63% and Wilson's bacillary antigen 57%, the last being the least efficient of the three. The percentages of positive fixation reactions obtained in various classes of



patients by the average of the three antigens were 11% of the clinically normal individuals, 58% of the questionably tuberculous, 56% of the incipient, 64% of the moderately advanced, 71% of the far advanced, while moribund cases gave a lower percentage of positives, 44%, corroborating the findings of previous reliable investigators. A fair high percentage of serologically positive luetic serums (50-60%) gave cross fixation tests with all three antigens.

Watkins and Boynton<sup>14</sup>, who have recently reported six thousand cases, emphasize the merits of this reaction. They conclude that a positive fixation reaction can be interpreted as being indicative of tuberculosis either active at the time or recently active. The tuberculous focus may or may not be of clinical significance, which fact must be determined by other means. The negative reaction, according to them, indicates either an absence of infection or excessive activity of the disease to the point of exhausting the so-called antibodies, or the arrest of the disease with spontaneous disappearance of antibodies which are no longer required. Not all writers are so optimistic on this reaction. Stivelman<sup>15</sup>, who reports a study of seven hundred cases, concludes that since 24% of non-tuberculous individuals and only 52.4% of definitely tuberculous persons gave a positive reaction, it would seem hazardous to permit the test in its present stage of development to influence our clinical judgment; the test does not help in the differential diagnosis of pulmonary disease; in pulmonary tuberculosis, clinical activity could not be diagnosed from the results of the complement fixation tests; the test sheds no light on the immediate prognosis.

We have thus tried to review the subject of complement fixation.

From a purely immunological point of view, it is difficult to understand how complement fixation, which is one of the class of immunological antibody reactions, can play any significant rôle in the diagnosis of tuberculosis, since no one has ever demonstrated the presence of a single so-called immune body in tuberculosis.

From a purely serological point of view we have reviewed the several antigens commonly employed and discussed their merits; we have also stated the opinions of three different groups of workers, that of Watkins and Boynton who firmly believe in complement fixation as a diagnostic agent; that of Stivelman who sees little or no value in it, and that of Givler and Young who are inclined to take an intermediate position.

The writers wish to express their gratitude to Dr. Corper for the material assistance given them in the preparation of this paper.

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- <sup>5</sup>Lucke: Jour. Immunology. 1916, 2, 457.
- <sup>6</sup>Corper: Jour. Inf. Dis. 1916, 19, 315.
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- <sup>9</sup>Petroff: Amer. Rev. Tuberc. 1918, 2, 523.

- <sup>10</sup>Petroff and Brown: Am. Rev. Tuberc. 1918, 2, 525.
- <sup>11</sup>Lange: Amer. Rev. Tuberc. 1918, 2, 541.
- <sup>12</sup>Von Wedel: Jour. Immunology. 1920, 3, 1037.
- <sup>13</sup>Young and Givler: Amer. Rev. Tuberc. 1919, 3, 476.
- <sup>14</sup>Watkins and Boynton: Jour. Am. Med. Assoc. 1920, 75, 933.
- <sup>15</sup>Stivelman: Jour. Lab. Clin. Med., 1920, 5, 453.

## News Notes

According to press notices, Sterling is to make a local drive in the last of June to secure \$30,000 for furnishing and equipping a new hospital which has been otherwise completed at an expense of \$52,000.

The engagement of Dr. Thomas Donald Cunningham of Denver to Miss Isabelle Coolidge of Boston has been announced. The wedding is to take place in Boston June 22.

Two women, Miss Marie Kein and Miss Margaret Bryson, both of Denver, are numbered in the graduating class of the school of medicine of the State University. There were also two women graduates in the law school.

Dr. A. C. Magruder of Colorado Springs was in Denver the latter part of May when he read a paper before the doctors engaged in public health work in District No. 11.

According to the daily press a contract with Denver architects for the new state hospital and medical school was signed on May 24.

The Colorado Neurological Society held its bi-monthly session in the Congress hotel, Pueblo, May 20. Fifteen members were present.

A severe epidemic of typhus has been in progress among the Navajo Indians at their reservation near Durango. At the time of writing, two Indian agency doctors, Dr. George H. Davis and Dr. John C. Graffin, are known to have lost their lives through service to the Indians during the epidemic. The U. S. Public Service, the Indian Medical Service and the New Mexico Board of Health are cooperating in combating the epidemic, a spacious hospital having been provided for delousing purposes. At the outset the disease was thought to be a severe form of influenza.

Dr. C. H. Darrow of Denver was married May 14 to Grace Marian Clark of Denver.

Dr. Robert T. Frank, formerly of New York City, more lately of Boulder, has announced the opening of offices at 511 Majestic building, Denver; practice limited to gynecology.

The partnership which has hitherto existed between Dr. E. A. Peterson and Dr. A. W. Metcalf of Denver, has been dissolved by mutual agreement, effective July 1.

Dr. J. B. Crouch, formerly connected with the Woodmen Sanatorium, has removed his offices to 316 Ferguson building, Colorado Springs.

Dr. J. G. Kennedy of Elk City, Kansas, would like to find a good, remunerative location in Colorado, preferably in the irrigated district adjacent to Denver. Anyone desiring to sell his practice or equipment may communicate with Dr. Kennedy directly.

Dr. R. V. Witter, formerly of Elizabeth, has moved to Bayard, Nebraska, leaving a good country practice forty miles from Denver. He would like to rent his home and office at Elizabeth with the prospect of selling it later.

In a letter addressed to the Colorado State Medical Society through its secretary, Dr. Crum Epler of Pueblo expresses his appreciation for letters of condolence received in his recent bereavement from members of the Society.

Dr. Saling Simon left on June 12 for New York City, where he will read a paper at the meeting of the National Tuberculosis Association.

It is stated in the daily press of June 8, that government restrictions on the sale of alcoholic beverages in Pueblo have been raised for a thirty day period, subject to later extension if the need for alcoholic medication persists.

Dr. Charles A. Powers of Denver left in the early part of June for Toronto to attend the meeting of the American Surgical Association.

The secretary of the State Society wishes to acknowledge receipt of the program for the annual meeting of the Medical Society of New Jersey held June 14, 15 and 16, at Atlantic City, and that of the South Dakota State Medical Association held May 24, 25 and 26, at Aberdeen.

The University of Colorado bulletin, announcing the summer quarter, 1921, lists courses in the school of medicine covering general bacteriology,



practical bacteriology, biochemistry, blood chemistry, human anatomy, clinical laboratory methods (with a special short course for practitioners), technique of the Wassermann test, advanced pathology and ophthalmology. The first term will be June 13 to July 20; the second, July 21 to August 27. Information may be had by addressing the Registrar of the University of Colorado, Boulder. Details of the course in Ophthalmology may be had from either the registrar or Dr. Wm. C. Finnoff, 318 Majestic building.

Dr. J. W. Ames of Denver is making a tour of New England by automobile following his attendance at the A. M. A. convention. He will return to Denver July 1.

Dr. George F. Libby of Denver is summering in Victoria, B. C.

Dr. Leonard Freeman of Denver has gone to Toronto to attend the meeting of the American Surgical Association.

The **Colorado Congress of Ophthalmology and Oto-Laryngology** will be held in Denver, July 29 and 30, 1921. This Congress, held under the auspices of the Colorado Ophthalmological and the Colorado Oto-Laryngological Societies, has become a permanent institution and this year promises to have a splendid and entertaining program.

#### NOTES ON A. M. A. MEETING.

The following Colorado physicians, forty-one in all, attended the A. M. A. convention at Boston, June 6 to 10, many of them going on to New York for the annual meeting of the National Tuberculosis Society:

Amesse, John W., Denver.  
Black, Herbert A., Pueblo.  
Carmody, T. E., Denver.  
Corwin, R. W., Pueblo.  
Delehanty, Edward, Denver.  
Edson, Carroll E., Denver.  
Finnoff, William C., Denver.  
Forster, Alexius M., Colorado Springs.  
Fox, Melvin R., Sterling.  
Gengenbach, F. P., Denver.  
Hall, J. N., Denver.  
Hartwell, John B., Colorado Springs.  
Hegner, Casper F., Denver.  
Henkel, Fred W., Rifle.  
Hillkowitz, Philip, Denver.  
Holden, G. W., Denver.  
Holmes, R. E., Cañon City.  
Jackson, Edward, Denver.  
Jones, Samuel F., Denver.  
Kenney, F. W., Denver.  
La Rue, C. L., Boulder.  
Long, Margaret, Denver.  
Lorimer, Hugh F., Ordway.  
Love, Tracy R., Denver.  
Magruder, A. C., Colorado Springs.  
McConnell, J. F., Colorado Springs.  
McGraw, Henry R., Denver.  
McNaught, Francis H., Denver.  
Miller, Lewis I., Denver.  
Mullen, Wm. V., Colorado Springs.  
Packard, George B., Denver.  
Reed, Charles W., Grand Junction.  
Schwer, John L., Pueblo.  
Shere, Oscar M., Denver.  
Smith, Richard G., Denver.  
Spivak, C. D., Denver.  
Strickler, David A., Denver.  
Taussig, Arnold S., Denver.  
Webb, Gerald B., Colorado Springs.  
Wescott, Orville D., Denver.  
Work, Hubert, Pueblo.

In accordance with the custom established ten years ago the Sunday preceding the convention was devoted to a public discussion of the achievements of scientific medicine, in the evangelical churches of the city. Among those who embraced preaching for practice on this occasion were Dr. R. W. Corwin of Pueblo and Dr. J. W. Ames of Denver. Papers were presented by Dr. Fosdick Jones, who addressed the orthopedic section on "Sclerosing Non-suppurative Osteomyelitis as Described by Garré", and by Dr. Edward Jackson, before the section on ophthalmology, on "The Position of the Eyeball in the Orbit". Dr. T. E. Carmody of Denver was elected vice-chairman of the section on laryngology, otology and rhinology. Fifty-five hundred members attended the meeting. Dr. Geo. E. de Schweinitz of Philadelphia was chosen as president-elect and St. Louis was selected as the place for holding the session of 1922.

## Medical Societies

### COLORADO OPHTHALMOLOGICAL.

The regular meeting of the **Colorado Ophthalmological Society** was held in the assembly hall of the Medical Society of the City and County of Denver, on March 19, 1921, Dr. W. C. Finnoff presiding.

J. A. McCaw, Denver, presented a negress the fundus of whose left eye showed a number of remarkable changes in the blood vessels, the condition being that known as endarteritis obliterans.

E. E. McKeown, Denver, presented a woman whose cornea was highly staphylomatous. The eye had suffered a lacerating injury at sixteen years of age, the iris prolapsing. Discussed by J. M. Shields, F. R. Spencer, C. A. Ringle, and C. E. Walker.

E. E. McKeown, Denver, presented a woman whose right eye had been operated upon elsewhere for dislocated lens, and whose left eye showed a similar condition as regards the lens. The right eye had failed to obtain vision from the operation, the optic nerve being atrophic. Discussed by C. E. Walker and Edward Jackson.

J. M. Shields, Denver, presented a youth aged eighteen years who for the past eight years had had interstitial keratitis of either or both eyes with later resulting disturbances. In spite of a negative Wassermann test, a number of details in the history, together with so-called Hutchinson teeth and a deafness which was not explained by any evidence of previous inflammation, pointed to a syphilitic causation. Discussed by G. F. Libby.

J. M. Shields, Denver, presented a man whose right eye had been perforated by a spike, but was apparently tending to satisfactory healing.

J. M. Shields, Denver, presented a man whose left eye was almost blind from scar formation following a lacerating injury; the question being raised as to the advisability of an optical iridectomy. Discussed by E. M. Marbourg, C. E. Walker, and E. R. Neeper.

W. C. Bane, Denver, presented a man upon whose right lower eyelid the Wharton-Jones operation for ectropion had been done with successful result. The deformity was due to a gasoline burn.

G. L. Strader, Cheyenne, Wyoming, presented a woman whose right eye had been inflamed at intervals for the past five years. There was a corneal opacity which seemed to agree with Fuchs' description of sclerosing keratitis. Discussed by D. H. Coover and W. H. Crisp.

W. C. Finnoff, Denver, presented a young man upon whose left orbital tissue and eyelids a series of plastic operations had been done to remedy a pronounced cicatricial deformity following injury by the blade of a revolving automobile fan. The eyeball had been lost, and the principal object to be attained by operating was the satisfactory wearing of an artificial eye.

W. C. Finnoff, Denver, presented two cases of epithelioma of the eyelid. In the first case the tumor had been excised elsewhere four or five years previously, but it had recently recurred and had completely perforated the tarsus. Following exposures to radium all signs of activity had disappeared. In the second case the ulcerated growth had apparently been secondary to a burn received in 1916, which had undergone a good deal of treatment by a dermatologist. At the time of presentation the lower eyelid had been destroyed, and the ulceration extended back under the globe and into the maxillary sinus. The patient refused radical operation, and marked improvement had followed the use of radium, but deeper involvement was anticipated unless the patient consented to the necessary surgical procedure. Discussed by F. R. Spencer.

WM. H. CRISP,  
Secretary.

The regular meeting of the **Colorado Ophthalmological Society** was held on April 16, Dr. Edward Jackson presiding. This was the annual meeting, and was held at the Cactus Club, where the Denver members entertained the out-of-town members to dinner. The attendance was somewhat diminished by the very heavy snowstorm which had occurred on April 15.

Drs. W. H. Crisp and E. F. Conant were reelected as secretary and treasurer, respectively.

Melville Black, Denver, presented a man who was suffering from double vision, which had first been noticed in January and was increasing. There was a hard, round lump, possibly cystic in charac-



ter, between the left eyeball and the lower inner margin of the orbit. Discussed by C. E. Walker, W. C. Bane, H. R. Stilwell, J. J. Pattee and Edward Jackson.

F. E. Wallace, Pueblo, reported a case of brain tumor in a woman, aged 56 years, with an unusual symptom complex. She gave a history of dizziness and ataxia first noticed in the spring of 1917. The tendency was always to fall toward the right. Beginning early in 1918 there had been progressive deafness in the right ear, associated with pain. There was no appreciable history of headache, and in July, 1919, the eyegrounds were negative. Dr. Philip Work diagnosed a probable gliomatous new growth of the right auditory nerve close to the posterior border of the pons, and advised that the case was inoperable. Operated upon in St. Louis in December, 1920, she died on the operating table; but before operation she was nearly blind and deaf and extremely dizzy. Discussed by J. J. Pattee, G. F. Libby, A. C. Magruder and J. A. McCaw.

G. F. Libby, Denver, gave a short talk upon a number of observations of practical interest as regards the treatment of exceptional refractive conditions, including amblyopia, anisometropia and nystagmus. Discussed by Melville Black, J. J. Pattee, W. H. Crisp and A. C. Magruder.

WILLIAM H. CRISP, Secretary.

#### COLORADO SPRINGS CLINICAL CLUB.

The regular meeting of the **Colorado Springs Clinical Club** was held on May 25, 1921. The vice-president occupied the chair.

Dr. Grover reported five cases of neuritis treated by electro-therapeutic procedure. He stated as follows: Neuritis presents a wide latitude of symptoms and its pathology is often obscure. The usual form is perineural. The treatment of these cases all depends on the causative factor. Acute neuritis should be treated by radiant light and heat and diathermy; sub-acute cases, with galvanism; and chronic cases with organized exudates by static current and x-ray.

Type of case. Patient age 47, occupation stenographer, family history negative. Personal history: never sick. Present history: for several months has suffered from parasthesia about the neck and shoulders. Pain gradually increased in severity and extended to the regions of supply of the circumflex and musculo-spiral nerves with more or less inability of function of the forearm muscles. A search for focal infection revealed badly infected tonsils. The tonsils were removed, after which the patient took a vacation, but the pain persisted. She was treated by galvanism, 10 ma. for fifteen minutes daily for twelve days when all pain ceased and patient was discharged.

Dr. Magruder inquired as to wry-neck, its pathology and relief by high frequency current. Dr. Timmons asked as to percentage of relief by electrotherapy. Dr. Grover replied that the static wave is better than the high frequency; that uncomplicated cases of neuritis are readily relieved; that it is necessary to differentiate between intra and extra pressure; that commonly relief is secured without the removal of focal infection; that in alcoholic neuritis, but few are relieved.

Dr. Hanford reported the following case histories: Female, age 26, very well developed, weight 156 pounds. Family history, negative; personal history, several attacks of erysipelas during childhood. In midsummer complained of general nervousness and pain in the right knee; in December, consulted the doctor on account of gastric distress and constipation; toward the end of the month headache was added to the other symptoms; a few days later, complained of severe pain in the right arm and inability to write. Demonstration of writing shows sprawling, irregular characters. She does not finish her writing. In January, took to bed and complained of many symptoms to her family, but not to the attending physician. Was very contradictory in her statements. Brain involvement suspected. Dr. Stephens called in consultation. Diagnosis of brain tumor made. From this time the pathology progressed very rapidly, right arm becoming practically useless; right leg flexed and could not be extended; left eye bulging. January 8th, consultation, Drs. Stephens, Stough and McConnell. Diagnosis of brain tumor, probably glioma, made. Evidences of pressure so marked that decompression was advised in order to save vision. Patient went to Chicago January 15th; was operated upon there; enormous pressure discovered, but surgeon unable to remove tumor. Patient returned home January 29th; left side involved; unable to move. In February there was a slight return of motion in left leg and hand.

By the 16th, left arm moved freely, left leg slowly, considerable pain in both; appetite voracious at times; general strength fair; unable to see with right eye, fair vision with left. In March patient complained incessantly. As a result of the operative procedure, there is a large hernia cerebri; prognosis bad.

Mail, age 25; negative history; fell distance of thirty feet from building; on examination, found pneumothorax of right lung; no rib fracture found; some injury to second lumbar vertebral body suspected.

Roentgenogram showed no fracture but collapsed right lung which has since returned somewhat to normal; mediastinal contents not as much displaced to left as originally. There was fracture of the lower third of the gladiolus with slight inward or backward inclination of the lower fragment. Roentgen examination one month later: right lung nearly fully expanded except at the costo-phrenic angle, where it is lifted to the level of the dome of the diaphragm.

Female, age 30. Motor accident. Knee injured; thigh swollen; multiple ecchymoses were seen on third day; roentgenogram showed fracture of the upper end of the right tibia extending into joint. Treatment by immobilization; good results.

Dr. Stephens discussed the brain tumor case history; described location and the method of localization; spoke of choked disc, intra-cranial pressure and the frequency of glioma.

Dr. Webb, in discussing the case of spontaneous pneumothorax following fall of ten feet, reported a case of massive collapse of the lung: girl, age 16, swinging on horizontal bars in park, fell; fainted; examination revealed complete atelectasis, trachea displaced to right, heart displaced to right; complete recovery.

Dr. Lennox was next called upon and reported as follows: male, age 63; indigestion for years; ulcer of the stomach followed by profuse hematemesis, gradual recovery. Treated by Dr. Sippi. Present illness: In September, 1920, seized with intense pain in epigastrium. Much vomiting, followed by relief. Gastric contents examined. Free hydrochloric acid present, 29. B.P. 152-104. Urinalysis, trace of albumen, a few hyaline casts; temperature, 98.6; pulse, 80; respiration, 20. The epigastric distress, nausea and vomiting continued until October, when he was sent to a hospital and Sippi treatment instituted. At this time weakness was marked; 38 pounds loss in weight. Toward the end of October general gain in weight and strength, less nausea, no vomiting, patient up and about. November 1st, forty-fifth day of illness, patient complained of pain in left hip and numbness in left arm and leg. Sneezing without apparent cause occurred. During the week following, the patient was markedly delirious, and there was twitching in both arms and legs; breathing of the Cheyne-Stokes type; Trousseau and Chvostek signs marked; rigidity of extremities with flexion of elbows; accoucheur position of hands, and plantar-flexion of feet; twitching of whole body for five minutes at a time; twitching of arms and legs almost constant; difficult to arouse from stupor. Toward end of following week, patient showed improvement, mind clearer, mind hypersensitive. On the 122nd day of his illness the patient's weight was 166 pounds, urine normal, red blood cells 4,000,000, white blood cells 7,000, blood pressure 148-98. Diagnosis, tetany.

Dr. Loomis, in discussing this case history, mentioned a patient seen in a Boston hospital suffering similarly; salt solution given intravenously; improvement followed. The rationale of the procedure in this case rested on the fact that due to excess of vomiting there was a large loss of chlorides (HCl).

JOHN FRANCIS McCONNELL, Secretary.

#### NORTHEAST COLORADO.

The **Northeast Colorado Medical Society** held its regular meeting at Haxtun on May 13th. A very excellent meeting was reported by those in attendance.

The scientific program consisted of papers as follows:

Dr. W. H. Keesee, Vaccines; Dr. C. S. Elder, Operations on the Prostate; Dr. H. C. Hill, the Prostate, With Presentation of Recently Operated Case; Dr. Struble, D.D.S., Relation of the Dental and Medical Professions. A clinic was given at the hospital which was enjoyed by all (the physicians) present.

The following physicians were in attendance at the meeting: Drs. Sisson, Palmer, Woodruff, Fox, Chipman, Bush of Sterling, Hill, Crowley and Means of Holyoke, Kinzie, McKnight, Parker and



Keesee of Haxtun. Dentists: Thompson and Orhmland of Sterling, Strubel of Haxtun and Tierney of Holyoke were also present at the meeting.

Drs. J. H. Kellogg and C. S. Elder of Sterling were elected to membership in the Society. By request from the Sterling Hospital Association an advisory committee was appointed from the membership of the Society to meet with the hospital board. The committee appointed is composed of the following physicians of Sterling: Drs. J. C. Chipman, J. H. Bush and E. P. Hummel.

The visiting physicians were the guests at a six o'clock dinner, served at the hospital, of the physicians of Haxtun. E. P. HUMMEL, Reporter.

The **Northeast Colorado Medical Society** met in regular session in Sterling June 9. This was the last meeting until September, the Society holding no meetings during the summer months.

The secretary reports a membership of thirty in good standing. This is eighty percent of the available membership at the present time.

Doctors Kinzie of Haxtun and Chipman of Sterling gave talks on Medical Ethics, which brought out a very lively discussion.

Dr. Palmer of Sterling read a paper on Ear Complications in Measles.

Dr. W. H. Keesee of Haxtun was elected to membership in the Society.

The new City Hospital will be opened for the reception of patients early in July.

E. P. HUMMEL, Reporter.

### PUEBLO CLINICAL AND PATHOLOGICAL.

The **Pueblo Clinical and Pathological Society** met May 11, 1921, at a dinner meeting, forty-five members being present.

Dr. J. H. Woodbridge gave the following case reports:

#### Report on Two Cases of Botulism.

Case 1. Margaret E., aged 4, partook Sunday of a dinner at which some beets, canned by the cold process, were eaten. Early Tuesday morning she was taken sick. She had gone to a picture show the night before and was apparently well. She had some popcorn and candy to eat, but not excessive quantities, and was apparently well at that time. On Tuesday morning she moaned slightly and appeared sick, but had no particular complaint. When seen at 10:00 a. m. she had a normal temperature and pulse. Her pupils were slightly dilated but reacted to light. Knee jerks and abdominal reflexes were present but not lively. The peripheral circulation seemed sluggish. She could not swallow solids or liquids, and talked very little and very indistinctly. There seemed to be an accumulation of mucus in the pharynx which she could not expectorate, together with some paralysis of the soft palate. She was unable to hold her head up, in fact the loss of control of her head was so pronounced that it was at first suspected that she might have had a broken neck. No further signs could be elicited. The child died at 1:00 o'clock after an illness of seven or eight hours of what seemed to be, from the symptoms as described by the mother, respiratory paralysis.

Postmortem examination revealed nothing but congestion of the left frontal lobe of the brain.

Case 2. The father, who had also eaten of the beets at this dinner, awoke Tuesday morning with a feeling of lightness in his head and double vision. By Tuesday night his throat was affected so that he swallowed with difficulty. He was taken to the hospital. Temperature, pulse and respiration, normal. By the next morning he could not swallow liquids or solids and spoke with difficulty. Pupils slightly dilated but reacted to light. Reflexes of abdomen and knees, diminished. Patient grew gradually worse and died Thursday afternoon of paralysis of respiration.

Three other persons were similarly affected and this fact taken in connection with the symptoms makes the diagnosis of botulism probably correct.

#### Discussion.

Dr. R. H. Finney spoke of an epidemic in the East covering eleven cases, seven of which died. Serum was given those who had not died within twenty-four hours after ingestion of the food. Food infected with botulinus will always have an odor and every cook should smell the food before serving.

Dr. J. W. Craighead: We have had two cases which at first we thought were mental conditions, but they had symptoms very similar to these cases mentioned.

Dr. F. M. Heller mentioned several types of the organism. All these types give an odor to the food very similar to that of rancid butter. The organism in the intestinal tract will produce a lesion; there

may be hemorrhage in the spleen, kidney and liver. Postmortem examination in these cases showed hemorrhage in the brain. All had pronounced encephalitic symptoms. Fever was present in one case and not in the other. Organism of botulism was recovered, so decision was against encephalitis.

Dr. J. H. Wolf: I saw one of these cases, a boy, at 4:00 p. m. He had diplopia, malaise and prostration, talked thickly, had very heavy saliva, was quite drowsy, refused food and water. Temperature and pulse were normal. There was swelling of the throat, choking him up. Mucus was so tenacious he could not spit it out. He did not appear very ill. I was called again at 2:00 a. m. On suspicion of diphtheria, I gave him antitoxin. I did a lumbar puncture which was negative. There was a flaccid condition and great relaxation of neck muscles; could not swallow, throat very dry. Respiration greatly interfered with. Death followed within twenty-four hours after first symptoms. In a second case, the eyelids drooped, there was malaise, patient walked as if dizzy, staggered, there was incoordination, reflexes were all negative. He had dilated pupils. I secured a botulistic serum from a veterinarian and administered 24 c.c.'s. Disease progressed; neck muscles greatly relaxed and head flopping. A few hours following administering of serum, he seemed better. Temperature raised one or two degrees. Next day I gave 10 c.c.'s more of the serum. Patient gradually improved. I administered atropine for the thick mucus and continued this. A cardiac distress developed, but with stimulation this disappeared. The symptoms gradually improved but at the present time there are some head and neck symptoms. The third case, that of the father, showed similar symptoms. I gave a prophylactic dose of 10 c.c.'s of serum. The symptoms did not become very serious and he is recovering. The beets which were eaten were put up by the "cold" method. After they were opened they had hot vinegar poured over them without being recooked. There may be some question as to whether the antitoxin did good or not, but I believe it was beneficial as the symptoms improved.

Dr. H. T. Low: These series of cases have caused very great discussion from a scientific standpoint. In many cases the organisms have been isolated. In the series of our cases here, the bacillus not having been isolated, it may cause a question as to whether we were dealing with botulism or encephalitis.

Dr. F. J. Peirce: In these cases the symptom of diplopia has been mentioned as being present. This reminds us of the good old days before prohibition took effect.

Dr. Philip Work: I was present at the post-mortem examination of these youngsters. The left hemisphere was intensely congested, the cortex was reddened and slightly swollen. The frontal pole was softened almost to the fissure of Rolando. Section of the two frontal poles showed a marked difference. The one affected was almost soft enough to run out and very hemorrhagic. The second case which developed diplopia had a typical bulbar speech. There was nystagmus to left and the tongue was protruded to the left. This case came to autopsy within forty-eight hours after the doctor was called. The brain had great hemorrhage in the right hemisphere. It was less solid than the left. A section showed a marked difference. The presumptive symptoms were very decided in all the cases. I found no abdominal symptoms. There was marked constipation and no results were obtained from enemas. I could not say that these cases were typical of these series. I believe we got good results from the serum. The symptoms in some of the cases may have arisen through fright.

Dr. J. H. Wolf: If I can speak again, I wish to say decidedly that in my mind there is no question as to the diagnosis being that of botulism. If the beets could have been examined, I believe a culture would have shown the organism.

Dr. J. H. Woodbridge, in closing: The symptoms from botulism may appear as late as the fifth day and all these cases showed symptoms within that time. This toxin forms in the cans. Heating to 212° will destroy both organism and the toxin. One striking thing was the suddenness of onset in some of these cases. In one case death occurred within seven hours.

Dr. C. W. Streamer gave the following case report:

#### Delayed Delivery in a Primipara at Term.

Mrs. P., primipara, 27 years old, weight 135 pounds, height 5 ft. 3 in., normal in all respects as to pelvic measurements, urinalysis, etc.

At term pains began at 2:30 a. m., April 6, 1921,



of intermittent and irregular character, continuing so throughout the day with a bloody show and watery discharge.

L. O. A. position, fetus apparently normal on palpation.

5:30 p. m. Taken to hospital with a continuous water leakage during trip; prepared for delivery.

8:00 p. m. Pains strong but still irregular 3, 6, 8, 5, and 2 minute intervals, of  $\frac{1}{4}$  to  $\frac{1}{2}$  min. duration.

12:00 a. m. Pains lasting 1 minute and quite severe, two to three minutes apart.

2:00 a. m. Slight bulging of perineum.

4:00 a. m. Pains severe every 2 minutes, perineum bulging slightly; examination showed cervix with one finger dilatation; manual dilatation to size of a dollar, morphine sulphate gr.  $\frac{1}{4}$  hypodermatically.

8:00 a. m. Pains every 3 minutes lasting one minute.

11:00 a. m. Vaginal examination, no further dilatation. Morphine sulphate gr.  $\frac{1}{4}$  hypodermatically.

2:40 p. m. Pains lasting 5 minutes at five-minute intervals, no further advancement. Ether given and a Voorhees' bag inserted.

4:00 p. m. Patient rational and pains beginning again. Fetal heart tones good.

5:00 p. m. Pains every 3 minutes lasting 2 minutes.

7:00 p. m. Two ounces water removed from Voorhees' bag.

8:00 p. m. Pains very severe, patient tiring; morphine gr.  $\frac{1}{4}$  hypodermatically.

11:00 p. m. Pains every 2 minutes lasting 5 minutes. Voorhees' bag removed; cervix softer but very little more dilatation.

1:30 a. m. Cervix still firm posteriorly.

3:45 a. m. Morphine sulphate gr.  $\frac{1}{8}$  hypodermatically.

7:00 a. m. Pains severe every minute, lasting 5 minutes.

7:45 a. m. Slight emesis. Fetal heart tones weaker.

8:00 a. m. Ether administered, dilatation completed manually. High forceps applied and baby born at 9:35, in poor condition but resuscitated with hot and cold water.

No lacerations. Mother and child made an uneventful recovery leaving the hospital on the fourteenth day.

Due to the fact that the patient was normal in all respects except for the dry birth, the fetus remaining in good condition, no more interference was logical at an earlier time.

The uneventful recoveries of mother and baby I feel are proof of correct care in this case.

#### Discussion.

J. C. Epler: Allow me to ask why so long a delay in this case with such vigorous pains.

Dr. Streamer, in answer to Dr. Epler: Will say that the patient was in excellent condition and the mother refused to take anything. The fetus was in good condition, and the uterus in high engagement.

Dr. Wolf: The doctor certainly used more patience in this case than the rest of us would have done and I believe he did right in waiting.

Dr. J. H. Woodbridge: I think the doctor was very fortunate in not having a rupture of the uterus because the pains were vigorous and lasting a long time.

Dr. J. C. Epler: Allow me to say that this was a dry birth and should have been terminated sooner. There was danger to the child and many other things might have happened. A long convalescence might have resulted. I believe the labor should have been terminated hours before.

Dr. F. J. Peirce: Every case that goes over the 24-hour period should be handled carefully. I believe infections are more apt to occur after this period of time.

F. E. WALLACE, Recorder.

#### New and Nonofficial Remedies.

During May the following articles were accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

The Gilliland Laboratories: Acne Mixed Vaccine-Gilliland.

Hoffman-LaRoche Chemical Works: Pituglandol.

Lederle Antitoxin Laboratories: Cholera Vaccine (Prophylactic)-Lederle; Plague Vaccine (Prophylactic)-Lederle.

H. A. Metz Laboratories: Silver Salvarsan 0.05 Gm. Ampules; 0.1 Gm. Ampules; 0.15 Gm. Ampules; 0.2 Gm. Ampules; 0.25 Gm. Ampules; 0.3 Gm. Ampules.

Seydel Manufacturing Co.: Guaiacol Benzoate-Seydel.

## Book Reviews

**The Medical Clinics of North America.** Volume IV, Number IV (Philadelphia number, January, 1921). Octavo of 355 pages, 37 illustrations. Philadelphia and London: W. B. Saunders Company, 1921. Published bi-monthly. Price per clinic year: Paper, \$12; cloth, \$16.

The Philadelphia number contains the usual series of interesting clinics, covering a wide scope of subject matter. Dr. Alfred Stengel opens with a contribution on the use of serum and blood of convalescent patients in the treatment of lobar pneumonia and influenzal pneumonia. Acting upon the assumption that antibodies may be present in greatest abundance just following the crisis, a series of cases of pneumonia were treated by withdrawing blood from patients as soon after the crisis as possible and using the serum in some cases and the whole blood for the treatment of other cases. The results must be taken as suggestive of a possible means of corroborating forms of diseases for which other modes of treatment are rather inadequate.

Dr. Thomas McCrae delivers an instructive clinic on a very common every-day malady, "Pain in the Lower Back". This is followed by an up-to-date contribution on calorimetry, its application in clinical medicine, by Drs. M. Howard Fussell and Leon Jonas. "Phlebitis and Thrombosis" is discussed by Dr. David Riesman. A very praiseworthy consideration of the diaphragm dealing especially with the anatomical and physiological methods of examination, conditions associated with altered position and diaphragmatitis, is presented by Dr. Elmer H. Funk. Medical aspects of retinal hemorrhage are discussed by Dr. O. H. Pepper in a very instructive manner.

Dr. J. P. Crozier Griffith deals with types of anemia as seen in early life, and Dr. Francis X. Dercum with problems in diseases of the internal secretions. A newer method of treating chronic arthritis, with lamblasis, by duodenal biliary drainage, is presented by Drs. Lyon, Ellison and Richardson. Abnormal cardiac rhythms and their differentiation by simple methods are dealt with by Dr. C. C. Wolferth. Another praiseworthy clinic on carcinoma of the esophagus is presented by Dr. T. Grier Miller. This number of the Medical Clinics of North America contains a wealth of valuable information, maintaining the high standard of this publication.

J. L. M.

**Traumatic Surgery.** By John J. Moorhead, M. D., F.A.C.S., Late Lt. Col., Med. Corps, American Expeditionary Forces; Professor of Surgery and Director Department of Traumatic Surgery, N. Y. Post Graduate Medical School and Hospital. Second Edition, Entirely Reset. Octavo of 864 pages, with 619 illustrations. Philadelphia and London: W. B. Saunders Company, 1921. Cloth, \$9.00 net.

This is the second edition and is a complete volume on the subject of Traumatic Surgery. In this volume the author has placed all the information necessary to diagnose and treat all usual and most all the unusual effects of accident and injury. This edition contains many changes and additions brought about by experience gained in the late war. The entire book deals with each injury in a short and concise manner, yet completely. The chapter on Traumatic Neuroses and Treatment is especially good.

The book is well written by a man of wide experience and can be commended to both general practitioner and specialist.

L. H. W.

**The Dawn of Modern Medicine.** An account of the revival of the science and art of medicine which took place in Western Europe during the latter half of the eighteenth century and the first part of the nineteenth. By Albert H. Buck, B.A., M.D., formerly professor of diseases of the ear, Columbia University, New York, etc. Cloth, pp. 288, with 38 illustrations; New Haven, Yale University Press, 1920.

This book is published on the foundation established in memory of William Chauncey Williams, of the Class of 1822, and of William Cook Williams, of the Class of 1850, Yale Medical School, and is a continuation of the account given in the work entitled "The Growth of Medicine".

The present volume is the third work published by the Yale University Press on the Williams Memorial Publication Fund, which was established June 15, 1916, by a gift made to Yale University by Dr. George C. F. Williams, of Hartford, a mem-



ber of the Class of 1878, Yale School of Medicine, where three generations of his family studied.

The interesting and valuable data compiled in this volume were in the main taken from a large collection of medical works which had been purchased in Paris, France, in 1819, for Transylvania University, at Lexington, Kentucky, which then possessed a flourishing medical department.

It deals with the discoveries, discouragements, virtues and faults of the leading physicians of this period, arranged according to geographical districts, viz.: Northern and Central Germany, Austria, Italy, France, Switzerland and England. Few Americans played an important part in advancing the science and art of medicine during the latter half of the eighteenth century and the early part of the nineteenth, so Buck prefers to omit all reference to them, leaving them to be considered in works on modern medicine in which their achievements may be duly honored.

The work begins with a most interesting account of the life and achievements of Theophraste Renaudot, physician and founder of the first French newspaper (1586-1653), which is to supplement an omission from "The Growth of Medicine", as the source of this information was not available when the earlier book was published.

The book as a whole is a valuable contribution to the history of the evolution of the medical art and science of the time, and that portion of it which deals with the physicians and hospitals of France, Austria and England is intensely interesting. The paper, print and illustrations are excellent.

H. G. W.

**The Principles of Therapeutics**, by Oliver T. Osborne, M.D., Professor of Therapeutics, Department of Medicine, Yale University. Octavo of 881 pages. Philadelphia and London: W. B. Saunders Company, 1921. Cloth, \$7.00 net.

Nothing in recent years has so clearly presented the accumulated knowledge of modern medical treatment as Osborne's *Principles of Therapeutics*. Although the broad, general principles involved in the care of the sick have undergone little change in the past twenty-five years, there have been many new drugs and new combinations of old drugs added to the pharmacopeia. There has not been the same rapid disappearance of obsolete remedies. Many of the individual drugs have been subjected to scientific investigation with the amazing result that the useless drugs far outnumber those which have definite therapeutic action. The practitioner has not lately been presented with a concise, clear-cut statement of the indications, limitations, value and uses of those drugs which have proved themselves of value in the research laboratory, or better, perhaps, an insight into the drugs which have been proved worthless.

*The Principles of Therapeutics*, by Osborne, is an excellent contribution to the literature of the medical profession in that it presents in clear, bold, concise form the latest accepted methods and drugs used in the treatment of medical diseases. Furthermore, the author does not hesitate to discard any drug which, in his opinion, is obsolete. The minute details which are essential in prescribing drugs in order to obtain the maximum effect are well presented.

The contents are divided into fifteen different chapters, namely: prescription writing; valuable drugs and preparations of the United States Pharmacopeia; a therapeutic classification of useful drugs and description of their action, uses and administration; the endocrine glands and organotherapy; practical therapeutic measures; vaccines and serums; foods and diets; general physical measures; chronic drug poisoning; industrial poisoning; treatment of emergencies; treatment of simple disturbances of the surface of the body; practical advice to young physicians; medical laws and departments of health; and, last, the too often forgotten medical ethics.

Comment on each chapter is unnecessary as the headings are sufficient to indicate the character of the contents. The interest for experienced physicians will be mostly in the chapters pertaining to endocrine glands, vaccines, serums, heliotherapy, radium, etc. The under-graduate and young practitioner will find the chapters devoted to the art of medicine of special value as these subjects are rarely found in the curriculum of medical schools.

In prescription writing the advocated use of English instead of Latin, for the sake of clearness, as well as the prescribing of single drugs in place of the old-time mixtures are welcome departures from the older teachings and will probably meet with the approval of both practitioner and drug-

gist. These are the last masks which serve to give medicine its unwarranted mysticism.

The author has been successful in his purpose of presenting "the data necessary for the advanced student to well understand the objects of scientific treatment, the rational use of active drugs, and the physical methods used in the treatment of disease".

T. D. C.

**Principles of Hygiene**:—A Practical Manual for Students, Physicians, and Health Officers. By D. H. Bergey, M.D., Dr. P.H., Assistant Professor of Hygiene and Bacteriology, University of Pennsylvania. Seventh Edition, Thoroughly Revised. Octavo of 556 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1921. Cloth, \$5.50 net.

The author of this book takes up the "Principles upon which the modern hygienic practices are based". He aims to "aid students in architecture, in comprehending the sanitary requirements in ventilation, heating, water supply and sewage disposal and to aid physicians and health officers in familiarizing themselves with the advances made in hygienic practices in recent years". I must say that he brings together many things that are of interest and, no doubt, useful. His article on "Notification of Diseases" is especially good. But when I looked for "Prenatal care" or "Life extension" I failed to find them.

Botulism is dismissed without warning to the user of canned spinach to boil it for half an hour to destroy the toxin.

No mention is made of the work of Doty and Chapin in fumigation, but he insists on the old time use of formalin.

He recommends twelve days' detention for those exposed to smallpox, but others say twenty-one days' is better.

He makes no distinction in the use of quarantine and isolation.

Trinidad, Colorado, is accused of using broad irrigation, when the facts are, this town has had for the last four years one of the best sewage disposal plants in this state, or any other, consisting of Imhoff tanks and sprinkling filters.

Rural sewage disposal is disposed of in far too brief a manner, one cut of a dry earth closet and eighteen lines on sub-surface irrigation constituting its consideration.

Lengthy description is indulged in, of the means to avoid carrying infection by the doctors; while other men say that the chances of carrying disease by the medical man are negligible.

Having at present under investigation a dairy, the users of whose milk to the number of sixty have septic sore throat, I looked for some suggestions, but failed to find any.

J. W. M.

**Venereal Diseases—Physician's Responsibility for their Control.**

The venereal diseases are for the physicians alone. Osteopaths, chiropractors and Christian Scientists are constrained to withdraw from the field. This adds a greater responsibility to the medical man. He must in the first place be thorough. Carelessness impresses the patient unfavorably and he loses faith in the medical profession. If the medical profession is to maintain its prestige and the confidence of the public it must be able to meet the increasing demands of an enlightened public.

Remembering that each uncured case of venereal disease is dangerous to the public, the physician must either undertake to give the best possible treatment or refer him to a physician who will. It is within the physician's power and his responsibility to see that proper treatment is given to all sufferers, regardless of race, color, or social position. Most patients can afford to pay a reasonable fee, and for those in an infectious stage who cannot, the boards of health provide arsphenamine free. It is up to the physician to be big-hearted enough to see that the drug is properly administered.

In rural states, it is proposed that the medical men of each community confer and select one man who is willing to make a specialization of the study of venereal diseases. This man, who thus qualifies himself should be selected to treat the indigent patients. This plan would be advantageous to the medical profession and to the public.

It is the duty of the medical men to prevent spread of venereal diseases by the proper treatment of the existing cases. For the best results, united and cooperative efforts for encouraging specialization are required.—*Modern Medicine*. Vol. iii, No. 1, January, 1921.



# Colorado Medicine

OWNED AND PUBLISHED BY COLORADO STATE MEDICAL SOCIETY

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## Editorial Comment

### PUEBLO MEETING WILL BE HELD.

It will be a source of considerable pleasure to the members of the Colorado State Medical Society to learn that the annual meeting will be held in Pueblo as scheduled, October 5, 6 and 7.

After the occurrence of the destructive flood the Executive Committee felt that it would be a considerate thing to do to offer to relieve the Pueblo members of the task of entertaining the State Society this fall in case they found it was going to be a too difficult one. Although no suggestion of inability had come from the Arrangements Committee, it was felt that the Executive Committee's action should anticipate any such suggestion that might have to be made.

However, it did not take Dr. Singer long to get his committee and other members of the Pueblo fraternity together and decide that not only did they want to carry out their original program, but expected to do so. Dr. Singer, although appreciative of the desire of the Society to relieve Pueblo of its obligation, stated very emphatically by long distance 'phone that they expect to have a rousing meeting with good entertainment features and do not wish to have the meeting plans changed.

### FAITH HEALING REPARATIVE, NOT CREATIVE.

An exponent of the power of healing through religious faith is at this writing about to close a protracted series of remarkable meetings in Denver, an analysis of which appears elsewhere in this journal. An avalanche of ailing humanity has poured into these meetings, composed of sufferers from functional and organic diseases or injury described variously by the sensational press with the terms "paralysis", "palsies", "twisted limbs", "pain ridden", "blind", "mute", etc. It is not our purpose to discuss the highly wrought emotional state which resulted in the throwing aside of a large number of crutches, canes, plaster casts, mechanical appliances, bandages and dressings, which are later to adorn this lady's tabernacle, other than to say that if the doctor who often must go to great pains to convince his patient of their need could have the help of such blind faith his task would be much easier.

Mrs. McPherson is quoted in the daily papers on several different occasions as stating, when confronted with a patient who had lost a member of his body, that the healing power of faith (presumably in so far as she could invoke it) was not creative. This is the point, it would seem to us, at which the healer unconsciously admits the inefficacy of the whole faith healing system as applied to actual pathology. What this woman, confessedly from a farm in Canada, fails to understand because of insufficient education is that in all organic disease there is tissue change or tissue destruction which is as actual as the break of a bone. Possibly through religious zeal, possibly from other motives, she encourages a child with valvular heart disease to forsake the rest and quiet prescribed by its physician and to go about the usual habits of childhood running, playing, perhaps jumping, climbing on street cars, etc.; yet the loss of substance in those heart valves is as material as the loss of a leg and is not more subject to repair by nature, yet far more dangerous to the child's life. It appears that religious faith can create new heart valves, new lung tissue, new skin, new mucous membranes, but can not create a new finger. This inconsistency born of ignorance is the same held by the Christian Scientists who do not recognize destruction of any part of the body by what we call disease, but will, we believe, send a broken bone to a surgeon. This latter sect, which disavows the material, inconsistently recognizes what it can see with its eyes and denies what is less materially evident. We wonder whether they recognize the inroads on plant life made by worms and insects and, if they do, why they cannot conceive of animal life being subject to parasitic invasion.

There is just enough religion in the editor to make him believe that if God can make new valves in the heart and new nerve cells in the spinal cord, he could make a new leg if he wanted to.

### X-RAY TREATMENT OF TONSILS AND ADENIODS.

It is doubtful whether there is any other vocation than medicine which is at once so practical in its aims and application and yet so dependent upon scientific experimentation and discovery. Especially does science dominate the "art" of medical practice, creating guides, rules and methods which are bewildering to the prac-

tical, helpful, every-day doctor if he attempts to understand them all basically. The best he can do is to sift and adopt them at their apparent value after being convinced of their authenticity.

When a new branch of science becomes allied with medicine, it soon lends to the belief that there are perhaps more unwary than there are cautious doctors, for the particular scientific procedure suggested is apt to be somewhat thoughtlessly accepted and too generally used; and so an inevitable revision of judgment must be made and the new method suffers an excessive and damaging reaction. That is the rather quick fate of many medical discoveries until by a slow process they recover lost ground and take their rightful place in the general therapeutic or diagnostic scheme, their use subject to known indications and limitations.

In the realm of physics the roentgen ray furnishes an example of a means of therapy which has passed through the period of misuse and has finally become stabilized so that its indications as well as limitations are now perhaps as definite as those of most therapeutic agents; although its possibilities have not yet been exhausted nor fully limited, for new apparatus, new and better methods of application and new uses continue to be developed for it. The point is that at present when some new use of the x-ray is advocated by reliable observers it may well deserve to be considerably undertaken by the experienced roentgenologist; especially since many of the older uncertainties of action and control of the ray have been eliminated in what may be thought of as the transitional period of its growth, and a given technic can be handed on from one to another and repeated with accuracy.

Beneficially effective treatment of chronically diseased tonsils and adenoids is one of the more recent accomplishments attributed to this agent. Emanating from a research laboratory of merit\*, a statement based on treatment of about sixty cases of diseased tonsils, accompanied by adenoid overgrowth in some instances, may be considered authoritative. With a given mild technic the results are recorded as a shrinkage of the tonsils (and adenoids when present) with destruction of the cells of the lymphoid follicles, expression of crypt contents and disappearance of pathogenic bacterial flora which had been proved by culture to be present before treatment.

The results of that series are substantiated by the report of a New York roentgenologist† appearing a month later, in which are cited some forty-eight patients treated for cervical adenitis who also had diseased tonsils, and in whom there was noted later on a return to normal of the tonsils in a considerable percentage. This result being attributed to the x-ray treatments which were only incidental and perhaps not of the most desirable quality for tonsil work, twenty-three new cases of tonsillar disease were se-

lected and specifically treated "with the result that in every case the adenoids have practically disappeared and the tonsils have assumed the appearance of health."

The effect of the x-ray on the tonsils is explained by the known susceptibility to x-radiation of lymphoid tissue in general and could well be predicted on that basis—the first case treated by Dr. Witherbee was, in fact, tried out on theoretical ground in 1919; the cure, by the way, being apparently permanent, the tonsils remaining one-fourth their pre-treatment size and the patient symptom-free some two years later.

This treatment seems to be founded on solid ground and, bearing in mind the caution that no one should undertake it who is not experienced in x-ray treatment and familiar with its dangers, the competent radio-therapeutist will be justified in using it in cases which for various reasons are not able to undergo operation, even though the number of cases treated so far is small. Dr. Witherbee's conclusions in that regard are:

"It would seem probable that x-ray treatment will be indicated in cases of diseased tonsils and infratonsillar lymph-nodes associated with chronic endocarditis, pericarditis, hemophilia or any co-existing conditions which contra-indicate operation or an anesthetic.

"We know that after tonsillectomy in subjects above the sixth or eighth year, and especially in adults, there still remains a considerable and possibly a vast amount of diseased lymphoid tissue containing pathogenic bacteria, in which cases it would seem reasonable to believe that the x-ray will prove to be of value.

"It must be understood that this paper is only suggestive, and that the permanency of the results time alone will determine. But the facts in so far as the experimental work has been carried out are presented."

A particular advantage of this mode of attack is its inclusiveness—the lingual and infratonsillar nodules being affected along with the tonsils; while they often if not generally escape surgery.

While a longer time and more cases may be needed to determine permanency of results, it appears that immediate benefits are to be expected from this innovation in tonsil treatment, that due caution has been exercised in drawing conclusions from its use and that in non-operative cases it is justified for the symptomatic relief afforded even though the results might not be everlasting.

It would be worth while to study its effects on diphtheria carriers.

#### STATE BOARD OF HEALTH NOTES.

##### Births and Infant Mortality in Colorado.

Comparisons with records from other states show that we occupy about a middle position with regard to birth rate and to deaths of infants under one year, having none so good as some of the cities in California, Texas and

\*Murphy, James B., Witherbee, W. D. (et al): Induced Atrophy of Hypertrophied Tonsils by Roentgen Ray, J. A. M. A., Jan. 22, 1921, p. 228.

†Price, Byron Sprague: Treatment of Adenoids and Tonsils by X-Ray vs. Surgery, Amer. Jour. Electrother. and Radiol., Feb., 1921, p. 81.



Massachusetts, and no death rates so high as one city in Pennsylvania. Yet, there is nothing very much to be proud of in this record, as the average birth rate per thousand is somewhere in the neighborhood of twenty-five. A few of our counties, I notice, have reached it, and one or two exceed it, notably Cheyenne, Kit Carson, Logan, Morgan, Otero, Phillips and Las Animas counties, the latter being the banner county with thirty-two births per thousand and the very low death rate of sixty-six per thousand; while following along a close second are Archuleta, Boulder, Garfield, Larimer, Mesa, Montezuma, Montrose, Prowers and Routt counties.

The causes of high death rate in children are well known, and the means to prevent it are equally well known, and some day, when we reach a higher plane of civilization, we will perhaps put these plans of life-saving into operation.

An absolute comparison of birth and death rates cannot be drawn from these figures, since deaths are generally reported while many births escape the records due to the negligence of doctors, midwives and parents. J. W. M.

#### BIRTHS AND DEATHS OF INFANTS IN COLORADO.

(By Counties.)

County—	Birth Rate Per 1,000	Deaths of Infants Under 1 Year Per 1,000
Adams	17	71
Arapahoe	17	144
Archuleta	22	180
Bent	17	110
Boulder	20	84
Chaffee	17	177
Cheyenne	25	54
Clear Creek	11	32
Conejos	13	80
Costilla	16	12
Crowley	8	110
Custer	13	30
Delta	14	157
Denver	17	101
Douglas	18	30
Eagle	15	100
El Paso	14	97
Fremont	15	123
Garfield	20	44
Grand	14	42
Gunnison	16	111
Huerfano	19	177
Jefferson	13	135
Kiowa	9	0
Kit Carson	25	97
Lake	15	223
La Plata	18	121
Larimer	22	102
Las Animas	32	66
Lincoln	17	64
Logan	26	81
Mesa	21	87
Moffat	12	152
Montezuma	22	93
Montrose	24	93
Morgan	27	94
Otero	25	150
Ouray	11	68
Phillips	26	75
Pitkin	12	0
Prowers	24	80
Pueblo	16	222
Rio Grande	14	99
Routt	22	71
Rio Blanco	14	0
Saguache	10	80
San Juan	6	90
San Miguel	17	83
Sedgwick	25	67
Summit	19	31
Teller	12	98
Washington	22	78
Weld	21	81
Yuma	25	92

## Original Articles

### FAITH HEALERS; WITH SPECIAL REFERENCE TO AIMEE SEMPLE McPHERSON.

C. S. BLUEMEL, M.A., M.D., DENVER.

Charles Mackay writes in his *Memoirs of Extraordinary Popular Delusions and the Madness of Crowds* (1892): "We find that whole communities suddenly fix their minds upon one subject and go mad in its pursuit; that millions of people become simultaneously impressed with one delusion, and run after it, till their attention is caught by some new folly more captivating than the first."

Since the war the world has had two well defined captivations, and perhaps the war is in part accountable for them. The first of these lures was spiritualism; the second is a revival of faith healing.

Faith healers have been rampant in Europe and America during the past two years. A notorious healer has been "practicing" in Avignon, France, since 1919. His technic is described as follows: "He drinks a glass of cognac, washes his hands in ether, and rubs the affected part." His pilgrims have brought commercial prosperity to the town; hence the authorities are loath to evict him. Half-hearted interference on the part of the gendarmes has been frustrated by those seeking healing, and he still continues his work unmolested. This healer uses no divine intercession. He cures on his own responsibility and collects his own fee.

An Italian religious healer by the name of J. Barbera "practiced" among his countrymen in New York in 1919. "He placed a crucifix in the hand of his patient, rubbed the hand holding the cross over the affected part, and applied a healing oil." Conviction probably brought "cures" in many cases, but, unfortunately for Barbera, the scheme reversed itself, and, in the end, the "cures" brought conviction—from the New York courts.

In 1919 and 1920 New York and Kansas City received visitations from James Moore Hickson, a layman of the Church of England, who professed to cure by the laying on of hands. His work seems to have aroused much enthusiasm among the clergy, for the 137th annual convention of the Episcopal Dioceses of New York considered a resolution to include healing in its missions.

In 1920 John Cudney, a kindling pedlar, "practiced" in New Orleans under the name of Brother Isaiah. He received some attention from the State Board of Health, but was not molested.

Early in 1921 Rev. W. T. Reynolds, rector of the Trinity Episcopal church of Newcastle, Pennsylvania, adopted a modified form of faith healing by praying with the patient that the physician's medicine might heal.

The New Thought Alliance is holding healing meetings in various parts of the country. And so the craze goes and grows.

Aimee Semple McPherson.

Aimee Semple McPherson, a Canadian evan-

gelist, is now conducting revival and healing services in different American cities. After a campaign in Dallas, Texas, she came to Denver June 19th, 1921, to conduct a three weeks revival service. In Mrs. McPherson's words, "Denver is awake beyond any city I have visited." Certain it is that the evangelist attracted enormous gatherings in this city, and that hundreds came to visit her from Colorado and neighboring states. She held services three times daily; and the City Auditorium, seating ten thousand people, was usually full to capacity. At the evening services thousands were turned away, as a rule to linger near the building with vague expectancy and with that lack of purpose which is the chief expression of a crowd's intent.

Mrs. McPherson claims no miraculous power and avers that she heals only through Divine agency. She also stresses the point that faith is absolutely necessary before healing can occur, that the healing is an expression of conversion, and that the convert when healed must give his life to Christ. "How long do the cures last?" she asks in addressing her audience, and responds with the question "How long do conversions last?" She admits that both may be very brief. The evangelist is much on the defensive. In a newspaper interview she is purported to say, "The cures, whether they are successful or are failures, are no test of me or of my work. They are God's, and His power cannot be tested". The healing power of God, according to the evangelist, is rather limited, and only certain cases are amenable. "I have not faith enough to believe that God will put in an eye or replace a leg," says the evangelist. The faith healing therefore narrows itself down to limited cures of limited cases.

The sick applying for healing are carefully sorted over by the evangelist's mother, and if they appear to be good risks, they are given cards which entitle them to the evangelist's healing prayer.

The preliminary part of the service is of the usual revival type, varying only from the customary form in that it stresses the subject of healing through faith. A collection is taken "for the building of a tabernacle in Los Angeles", and a special souvenir is offered to those who make contributions of twenty-five dollars.

After much exhortation to faith, the healing service commences. A little stringed orchestra near the platform plays over in endless monotony a wierd and plaintive melody which seems mesmeric in its effect. At other times the organ peals forth in grand and impressive strains. The sick, with their cards, mount the platform, lifting their faces and hands to Heaven. On the platform behind them is a row of chairs. Behind the chairs there is strung a rope to receive canes and crutches. Beside the evangelist stands an assistant with a silver dish containing the anointing oil. The setting is complete, and nothing is lost from which an impressionable mind could profit.

The afflicted convert now stands before the evangelist for healing. She takes his card and reads the "diagnosis". She dips her finger in

the silver dish and anoints the forehead of the supplicant with healing oil. She then manipulates the afflicted part—eyes, ears, arms, or legs, as the case may be—and prays to God for His healing grace. She commands the afflicted to be cured in the name of Jesus Christ. In some cases the cure is thereupon put to the test; in others the convert is assisted down the stairway from the platform by the ushers.

A large proportion of cases are those of partial deafness and especially of deafness in one ear. Stepping back a few paces from the patient, the evangelist asks, "Can you hear me?" As a rule the convert answers in the affirmative, as would the people in the back row, had the question been addressed to them. The test is repeated at a greater distance; and if the convert avows that he hears, he is told to raise his hands and cry "Praise the Lord!" One man whom I saw was only partially cured of his partial deafness; and he cried, "Glory be to God", instead of "Praise the Lord", and answered "Hallelujah" when he should have said "Yes". The crowd, however, is wild in its enthusiasm and applauds loudly and vociferously. By an unfortunate coincidence the enthusiasm of the organist increases when the deaf are being tested, and the organ peals forth in greater volume, perhaps giving them the impression that their power of hearing has increased.

Then comes a blind man. The oil is placed on his forehead and the healing hands are laid upon his lids. "Do you see better now?" the convert is asked. The answer is usually in the affirmative, for the poor creature knows that everything depends upon his faith. Another miracle, and the crowd roars again in the heat of religious fervor!

And now the lame or the paralytic comes to healing. Mesmeric passes are made on the crippled limbs, and prayer is raised to God. In his faith the convert declares that he is healed, and walks—more or less lamely—to show what his faith has accomplished. He surrenders his crutches or cane, and descends the steps from the platform, where the ushers will support him if his faith does not.

So goes the endless stream—the lame, the halt, and the blind—with a cure that will last only until faith begins to waver.

But not all of the converts descend the platform exalting God and calling upon men to witness their deliverance. Occasionally a cripple receives a card which wiser judgment would have withheld, and he obtains no grace from prayer and the healing hands. But the setting is well adapted to meet such a situation. When the cure fails, the man is placed in a chair behind the approaching line where he is admonished to lift his hands to Heaven and pray for greater faith. Shortly he is forgotten by the onlookers, who are watching those more responsive to prayer. Then, behind the screen of sick bodies and uplifted hands, the failure is spirited away where he cannot offend the eyes and faith of the plastic audience.

#### The Test of the Cures.

And now the thinking mind must ask itself, "How many of the cures are cures?" Can we



accept the immediate word of those who come from healing? Scarcely, for the sick man has been told that his cure is proportionate to his faith, and that if the cure does not come now it will surely follow. Hence, to deny the beginning of a cure is to deny even the beginning of faith. The sick are thus almost unanimous in proclaiming themselves cured when they leave the platform.

I am fortunate in having personal knowledge of a number of "cures" wrought by the evangelist. One young man suffering from tuberculosis left his bed at the county hospital on the evening of June 22nd and attended the revival service. From the platform he publicly proclaimed himself cured of his disease. After the service he returned to the hospital and a few days later developed tubercular meningitis. He died July 5th, thirteen days after the miracle of healing.

A young woman with tuberculosis of the hip joint got up from her bed, removed a loose-fitting body cast and proclaimed that she was cured. Ten minutes later I saw her in an ante-room, lying on a couch in complete collapse.

A patient of mine with early locomotor ataxia went to the meeting to be cured. He surrendered his cane amid wild cheers from the audience. The next day he returned to my office with a new cane.

A retired pastor proclaimed that he was cured of lameness. He is still drawing compensation for this disability. Thus it would seem that he must be lame, either physically or morally.

An old gentleman with left-sided paralysis went on the platform to be healed. In his zeal he waved his right hand to the audience, which hailed the miracle with prolonged applause.

Such are a few of the "cures" which have come to my attention.

In addition to these negative cures there are beyond question a few positive ones, for there are many cases of hysterical lameness, deafness, blindness, aphonia, etc., which yield to the stimulus of intense emotion. These various hysterical manifestations are often brought on by shock or emotional stress, and they disappear under like conditions. During the war, hysterics frequently occurred as a result of shell-shock, and they were often "miraculously" cured by the administration of ether to the stage of excitement. Such cures are the only positive cures that an evangelist can achieve. They are not miracles, but they are extraordinarily spectacular. The occasional occurrence of such cures is the foundation of faith healing.

The remaining "cures", which form almost the total of a faith healer's achievements, are based on the patient's affirmation, and this is an expression of his credulity and enthusiasm rather than his judgment. With sufficient enthusiasm, he may certainly convince himself; and under emotional excitement he may see, hear, or do more than he is wont. Similarly, bed-ridden patients may flee from a burning hospital; but they are not cured by the mere fact that they have left their beds. Such "cures" are merely the efforts of the sick to cling to health and life.

## Historical Review.

An English proverb says: "There is nothing new except what hath been forgotten". In this connection it is interesting to note that faith healing is new neither to Denver nor to the rest of the world. Denver gave origin to one of the country's most notorious faith healers twenty-six years ago. This man, Francis Schlatter<sup>1</sup>, was born in Alsace Lorraine, of German parents, in 1856. He came to America in 1884 and shortly afterward settled down in Denver, where he followed the trade of cobbler. "He was considered a little queer, or a man whose mind was not properly balanced". In 1895 he began his mission of healing in New Mexico, and in the following years covered the greater part of the country. His method of cure consisted in grasping the crossed hands of the patient and "imparting such virtue as he might". He was arrested in Hot Springs, Arkansas, as a lunatic, and was kept in jail for five months. At Throckmorton, Texas, he was arrested as a tramp. Nevertheless, he seems to have flourished as a healer and to have gained an amazing reputation. On his return to Denver, people flocked to him in thousands, and it is stated that his line of waiting patients was often two blocks long. Dr. A. B. Hyde of the University of Denver wrote of him<sup>2</sup>: "To me his look was idiotic; to others it was saintly, transcendent, seraphic". One of Schlatter's "cures" is Owens, "Denver's pioneer newsboy", whose crippled form is daily seen on the streets at the present time.

Later in his career Schlatter branched out into long distance healing by blessing handkerchiefs, which were to be applied to the afflicted parts. On this account he was denied the use of the mails. According to newspaper accounts he died in an insane asylum; but it has lately been reported that he is practicing faith healing in Nebraska. It is probable that the Nebraska Schlatter is an imposter trading on the old faith healer's reputation.

In the early forties Phineas Parkhurst Quimby<sup>3</sup> healed by the laying on of hands. His early practice was to dip his hands in water and rub the patient's head. Subsequently he realized that this practice was in no way efficacious and that the cure was purely mental.

The laying on of hands was abandoned, but mental healing was continued under the designation of "Christian Science". One of his associates, Mrs. Mary Baker Eddy, as she finally was known, appropriated this name with his system of healing and founded a church on his principles.

About 1771 Father Hell<sup>4</sup>, a Jesuit priest, cured disease by the application of magnetic plates. His system of healing was appropriated and widely exploited by Dr. Mesmer, from whose name the word mesmerism is derived. Mesmer later discarded the plates and healed by the laying on of hands. He believed that he had invented a new system of healing, attributable to "animal magnetism". He received the widest notoriety, and in subsequent decades had innumerable imitators. In 1878 the Académie des Sciences appointed a commission to investigate Mesmer's system of healing. The report



stated that all the phenomena investigated were due to the patients' imagination and not to "animal magnetism".

These principles of healing go back still further to the early Christian and pre-Christian eras, and the practice of "casting out devils" was known to the pagans as well as to the early ecclesiasts.

Faith healing in its last analysis seems to consist in curing an hysterical or imaginary disease or in imagining a cure of a real infirmity.

900 Metropolitan Building.

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<sup>3</sup>Milmine, G. Mary Baker G. Eddy. McClure's Magazine, xxviii, 1907, 339.

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### ARTHRITIS—SACROILIAC AND LUMBO-SACRAL; USUAL TYPES DUE TO OVERSTRAIN.\*

GEORGE W. MIEL, M.D., DENVER.

In presenting this paper, an observation, I confine myself essentially to the consideration of sacroiliac and lumbosacral arthritis due to overstrain, influenced by character of occupation or by habit, not necessarily connected with disease, originally or subsequently—the effects of mechanical irritation; which, though unlikely, may be carried to degenerative changes. Men are the ones most apt to be involved—those engaged in lifting, weight carrying, twisting, stooping or crouching or subject to jolting requirements in occupation, or tiring posture.

Let us first consider sacroiliac arthritis. The subjects are apt to be those of relaxed fiber, not necessarily from want of activity but, rather, from over-activity and over-tire. Those engaged in pursuits that place undue and prolonged strain upon the ligamentous supports of these articulations are more apt to be men in middle life, riders of road and field tractors, stationary or locomotive firemen, machinists, whose back-tiring work is for continuous periods. Or, in the case of sub-arthritis, it may be those who lack body tone, having no regular demand for bending exercise; those of prominent abdomen and sway-back, who find occasional need of prolonged bending or stooping back strain, as in dealing with automobile difficulties or amateur gardening. Or it may be that the complainant is not subjected to active work with back strain but sits habitually in conducive posture; for example, a trainman seated in the cupola of a way car with feet fixed forward against the wood-work on an equal plane with the seat, back sagging, unsupported and subjected to the shake of the train. In a more immediate manner, as pointed out by Goldthwait, the interspinous ligaments may be harmfully strained in dorsal posture during prolonged operation if both the arch of the back and knees are unsupported in the Trendelenburg posture, owing to the hyper-

extended thighs raising the sacrum and lumbar spine. To overcome back strain in the lithotomy position, he introduced the now-familiar flat metal leg rests.

It may be well to mention another class given to back tire rather than back strain, where arthritis has small part—rather joint irritation—who have sufficient discomfort to term it backache; found, say, among engineers, stenographers and others who sit erect for long periods without back support. A common instance is that of a person habitually using a bed which sags so that this region of the back is subjected to continued strain—perhaps during a prostrating and prolonged illness.

Now, in a general sense it may be said the tone of an individual depends largely upon his feet. With good feet, one may have the advantage of exercise calculated to make and keep up general tone. Without them the opposite may be expected; the stability of joints in conjunction with the bone relations depending upon the hold and backing of their ligaments and supporting muscles. In appreciation, then, of gradual and continuous back strain, situated low, we have simile in tiring occupational strain upon the feet, either, according to Goldwaite, being a result of improper use of one's body.

Arthritis, due to overstrain involving the lumbosacral articulation, has immediate and definite cause, usually, better appreciated, as also the effects, after familiarizing one's self with Goldthwait's extensive studies of this articulation and those contiguous. He emphasizes as a conclusion "that the lumbosacral articulation varies greatly in its stability, depending upon peculiarities in the formation of the articular processes, and of the transverse processes; that the peculiarities not only result in less than the normal strength of the joint, but may represent mechanical elements which not only produce strain and cause pain, but may lead to such great instability that actual displacement of the bones may result, with at the same time the separation of the posterior portion of the intervertebral disk."

Strain may occur forward, backward or at either side; it is inclined to be forward. I have found it in connection with effort in using a train jack; from an angling bend backward in high dive, which I myself have experienced.

As to symptoms, it is originally attended with acute pain, localized at the lumbosacral juncture, and with referred pain down the thighs (I find it at the inner sides) of neuralgic character; disabling but not necessarily confining. Under ordinary care and precaution, conditions gradually ameliorate; but under jolting or more than ordinary lifting movements the trouble will temporarily recur at intervals over a long period.

The symptoms found connected with sacroiliac arthritis, when brought to our attention, are more apt to be of an established type, complained of as more or less disabling backache, usually attributed to rheumatism or to kidney trouble, and the region involved indicated with a sweep of the hand toward the back, which the physician too often accepts as, say, lumbago

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and, without further ado, prescribes a remedy so addressed, perhaps a liniment, which, not materially relieving, is strengthened at the next visit or supplanted by something other, a rubbing direction being included. This perhaps may be followed by electricity. Disappointed, the patient concludes to try a hygienic bath establishment where heat and light are features, and from this, still dissatisfied, changes to a sulphur bath establishment, later seeking an osteopath or chiropractor—for whom I feel the indifference of physicians in dealing with these conditions and those allied in disabling “back-ache” is largely responsible and has made possible the existence of these several unnecessary cults and pathies, who, dealing earlier essentially with them, have thrived and made them means to extensive inroads into the legitimate practice of medicine. From all of these, to use the patient’s expression, “I received temporary relief, but they failed to get me anywhere”.

In these ailments of common occurrence and trying persistence, in instances perhaps regarded chronic, I feel the patient should receive more consideration, including painstaking diagnosis. They are amenable to intelligent treatment with an encouraging course and usually satisfying results, for which in their fullest appreciation I consider the profession indebted to Goldthwait.

In examination, after inquiring into the symptoms, the patient’s back should be exposed and the site determined by the localizing discomforts excited by bending, verified by palpation and the degree in lumbosacral arthritis estimated while erect by concussion, from the shoulders and also from the top of the head.

In the treatment of conditions of over-strain of the sacro-iliac joint, progress toward cure cannot be expected unless the abnormal inclination of the pelvis (when existing) which led to the strain is overcome and the pelvis brought into balance with the rest of the body.\* This may mean simply postural correction. In some types of sacroiliac arthritis, due to strain, abnormal inclination of the pelvis has not been a factor; or, perhaps, was so originally and not subsequently; in such, without need of postural correction and training, their treatment usually calls for the use of a supporting device for a time, precaution against exciting discomforts by certain movements or over-doing, furtherance of general tone meanwhile as can best be accomplished, including baths and judicious exercises. It may be that vocation will need be modified or changed.

In the treatment of arthritis at the lumbosacral articulation, due to overstrain, in the passive or later stages, the considerations are much the same as in the sacroiliac condition, or in these combined. It is, however, a matter of more importance and not so easily carried to satisfactory recovery. It is more disabling and discomforts are more easily excited, and it is apt to require more time. A back-supporting device is more essential and this should extend higher, and endeavor be made to keep the body

fully erect—“stressed” by Goldthwait—so lessening irritation at this joint.

To support the back, I resort to two devices, the first, improvised, as readily available and to satisfy myself of the need of the other, which, more conveniently used, covers the same requirements.

I make a sufficient back pad, some five by eight inches in size, of two pieces of firm pasteboard, including between them a piece of light and flexible rubber composition splint board, held together by adhesive strips. It is then cottoned on one side and covered by bandage. It is then placed over the region requiring support, the patient erect, and held in place by two adhesive straps, the lower, longest, reaching the descending portion of the ilium. I cover and support more fully with a wide outing-flannel bandage of some five yards length, applied snugly and neatly as an ascending spiral, securing with adhesive plaster. A two-inch piece is applied at each side, extending two inches below, to have hold on hips, and also a strip in front and another at the back to fix the turns. This completes the support and it is used a week or more and discontinued to be supplanted, if found necessary, by one of the sacroiliac supports available.

Majestic Building.

#### DISCUSSION.

**Crum Epler, Pueblo:** This paper which Dr. Miel has presented to us is one of vital importance, not so much for the intrinsic statements, but for what he has set forth as basic principles for thought. There are many things which the doctor has not mentioned that enter into the back conditions described. The patient comes to the physician because he is uncomfortable; he comes to him primarily for that; secondly, he comes for relief. Now, then, as properly mentioned by the essayist, after this patient has come to the office about a second or third time, the doctor or the surgeon very frequently feels that this is a self-limited condition, and that if the patient would rigidly follow instructions, in the course of time he would be all right. But he does not lay out a plan of scientifically doing for the patient, but rather leaves the patient to do for himself in an unscientific way. The patient first came because he was shrinking from the pain and, secondarily, asking for relief, but the professional man appreciates fully that it is a self-limited condition and feels that he will get well, and therefore loses interest. We do not always make the diagnosis, and not having made a proper diagnosis, necessarily we lose interest because the patient does not recover as fast as he should.

In the last sixty days a patient with trouble of this kind presented himself to me who claimed that his injury was due to having been hit by an instrument across the crest of the right ilium or just above it. His pain was entirely referable to the second and third lumbar vertebrae. He complained that it was not possible for him to work, that it was with great difficulty that he walked, and he had the characteristics of a man who has what is commonly known as lumbago. He had given up. He was examined physically by others than myself, he was x-rayed, he was treated medically, he was given certain forms of electricity; he was strapped and plastered with various kinds of supports, and yet he did not get well. Finally, he was referred to a neurologist, and the neurologist came back with the diagnosis that it was a case of traumatic hysteria. He was treated along that line, which was more or less suggestive, and in the course of ten or twelve days recovered, and when he recovered he recovered all at once. Now then, this patient at one time in the course of about two weeks’ observation and treatments, suggested that he thought he would go to an osteopath. I told him to go, and when I so invited him to go, he did not want to go. I didn’t care; I didn’t advise him to go to get relief, but I told him if that is what he wanted to do, to go, but be sure

\*Goldthwaite.



you pay your bills here before you go. He changed his mind immediately and didn't go. Then, he concluded finally that everything was being done for him that could be done, so he was satisfied; so that brings to mind what the essayist has intimated, that we are not, probably, doing sufficient in these cases to satisfy the patient, who is the sufferer, and who is magnifying his troubles.

**George A. Moleen, Denver:** Mr. President, I think we should indicate our appreciation of the timely presentation of this subject by Dr. Miel. It seems to me quite important from another view-point, that is, from the fact that these cases are frequently referred to a neurologist, as has been mentioned by the last speaker. They come as such, I think, because everything has been exhausted in the way of mechanical appliances and other means of treatment, and upon the supposition that they must be nervous, either sciatic or functional. Pain that is referred to any point below the waist line is often regarded as sciatic in origin. One case I have in mind was distinctly postural, as the essayist has pointed out, the pain was across the lower part of the back, and always increased as the day progressed. Investigation revealed that the man was in the habit of sitting on his automobile seat, as a great many do, five or six or seven inches forward from the back of the seat, and then resting his shoulders back against the seat, and every time a jog was encountered in the road that back was subjected to a strain, and the pain was easy to be accounted for when these facts were elicited. I think it is well to be sure, in the first place, that there is no neural involvement, which may be done, by attention to the well known clinical signs of nerve involvement.

**J. C. Chipman, Sterling:** I was particularly glad to hear Dr. Miel's paper, because I see a number of these cases and they are not very satisfactory to treat. Of course, they are hard cases to diagnose. I recently had a case I referred to Dr. Pershing that had been treated by me for about eight months, and he is getting better. I find oftentimes they are caused by flat feet. Those are not arthritic cases. It is brought about by standing on flat feet. I have talked with a member of a corporation since it has discontinued employing men with flat feet, and he tells me that they do not continue to pay the money that they formerly paid for relief in these back cases.

**Dr. Miel (closing):** I am glad that we have had some discussion, and I have no contentions except, perhaps, to remind Dr. Chipman in a moment or two, that that matter was intended to be referred to; but, Doctor, in presenting a paper of this kind the subject is confined to those cases due to overstrain; and I have violated the subject or that limitation somewhat, in referring to some cases considered neurotic rather than of overstrain. We have, of course, extreme conditions with disabling backache; cases very far from the province of this paper. They bring up questions of pathology, and I had no intention of invading that field. Those are the cases that have been observed and dealt with more effectively by Goldthwaite.

In connection with the case cited by Dr. Moleen with occasion for postural correction: I had a patient, a milk driver, who got about roughly in a wagon, and who complained of somewhat persistent backache. He had occasion to go away and take a holiday, and during the holiday did a great deal of work; apparently more trying on the back, in the way of log rolling—heavy work—but his back was equal to that and he had no difficulties. Upon his return he told me of this, and I replied, "If we do not get on well and find that you again experience backache in your present occupation, you will have to change." Discomforts again attending, he changed to other work with the desired result. Such cases suggest postural correction, or some change of vocation or occupation.

I was once called in some hurry to see a woman with influenza who was then suffering acutely from backache. Finding a sag in the bed, to better support the bed I placed a pad beneath the mattress, making her quite comfortable thenceforth. Beds should not sag. I myself experienced backache each night for several months with no particular reason that I could ascribe. I had a way of resting while sleeping upon my right side—facing outward. It was overcome by changing to the other side of the bed, to rest upon my left side.

In regard to flat feet, I thought I had covered that by saying the tone of an individual depended largely upon the condition of the feet; and I know that with a fallen arch, we have a lame individual, with tendency to varicose veins, and later, phlebitis, when the whole body is affected.

In anticipation, or in treatment of these condi-

tions, the physician will often advise suitable exercise, but he seldom particularizes. I tell them what exercise to take; and bend in demonstration. You must take interest in these cases.

## SUDDEN DEATH FOLLOWING ARTIFICIAL PNEUMOTHORAX; REPORT OF A CASE WITH AUTOPSY.\*

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Since the introduction of induced pneumothorax as a therapeutic measure in lung disease there have been reported from time to time sudden fatalities due directly to this operation. According to operators who have experienced this unfortunate accident, their occurrence can not be foreseen, but Forlanini<sup>1</sup> has said that they usually occur in weakened and nervous individuals, most frequently during the first treatment, and usually at the time when the needle is first introduced into, or taken out of, the pleura. Sometimes, however, they occur some minutes or even hours following the introduction of air into the pleural cavity.

The causes of these accidents are still in doubt, but the more common ones are, according to Stivelman<sup>2</sup>, air embolus, pleural shock, spontaneous pneumothorax, puncture of the heart and cocaine poisoning. Chloroform narcosis was considered as a cause, when this form of anesthesia was employed, but Wagner<sup>3</sup> determined that this was not the cause of death. Brauer<sup>4</sup> first advanced the theory of air embolus which he maintained resulted from the introduction of air through the needle into the greater circulation. More recent cases have been reported by various authors; many of these authors maintaining that air embolus is the cause of death. At the autopsy table, however, their diagnosis often has not been confirmed. Pleural shock was first described by the French as pleural eclampsia, or pleural epilepsy, the impulse being a reflex affecting the cardiac or respiratory centers, or other brain areas, with resulting nervous phenomena. Spontaneous pneumothorax does occur, but it is rarely fatal, or even serious, and can be avoided. Puncture of the heart is very rare, but may occur in fibroid cases where the heart is displaced. Minor<sup>5</sup> reports such a case, and another is mentioned by Stivelman<sup>2</sup>. Cocaine poisoning is not frequent, but is said to occur in susceptible individuals.

The symptomatology of these cases appears similar, regardless of the cause. Psychic disturbances followed by loss of consciousness, tonic, seldom clonic, muscular contractions usually more noticeable in the upper extremity, hemiplegia, dilated pupils, no involuntary defecation or urination, vomiting; soft, rapid, irregular pulse with alternating pallor and cyanosis, are usually reported in the observations recorded. Stivelman<sup>2</sup> reports, in addition, dizziness, dyspnea or shallow stertorous breathing, amblyopia and temporary motor and sensory aphasia,

\*Read at the annual meeting of the Colorado State Medical Society, September 7, 8, 9, 1920.



produced probably by spasm of the cerebral vessels.

### Case Report.

R. A., aged 49, entered the Union Printers' Home in Colorado Springs July 13, 1919. The family history was negative for tuberculosis, and also for epilepsy or any other well defined nervous disease. He denied syphilis and alcoholic excesses. He had had papillomata removed from the throat under local anesthesia on five different occasions, prior to his admission. He dated his present illness from December, 1918, at which time he had influenza, followed by great loss of weight, loss of appetite, cough, expectoration, fever and hoarseness. At the time of admission physical examination showed scattered involvement throughout the right lung, with slight infiltration at the apex of the left. He expectorated daily two ounces of mucopurulent sputum, which was positive for tubercle bacilli. His highest weight was 250, his average 230, and on admission he weighed 184 pounds. Wassermann test was negative, and the urine showed a few pus and epithelial cells. On October 13, 1919, three months following entrance, the patient had a slight hemorrhage, followed by numerous small hemorrhages, with high fever, loss of weight, increased cough and expectoration. Artificial pneumothorax was attempted on January 29, 1920, because of profuse bleeding, but at that time no free space was found on three successive punctures, the patient showing no ill effects from the operation. On February 24, 1920, Dr. W. V. Mullin removed under local anesthesia a small papillomatous growth attached to the right cord, hanging below the cords when they were separated, and ascending to lie above the cords during phonation. The patient experienced no difficulty following this procedure, but he failed to improve, and on May 4, 1920, a further attempt was made to collapse the lung. A free space was found at the first puncture and the reading was -4-5; 350 cc. of air was introduced with a closing pressure of 0-1.5. Two days later, May 6, 700 cc. of air was given and five days later, May 11, 300 cc. was introduced, and on no occasion did any unusual symptoms arise. The patient felt comfortable after receiving the treatments, the temperature was definitely lower and the expectoration slightly decreased. The physical findings at this time showed an area of increased resonance and distant breath sounds surrounding the site of puncture, and extending posteriorly; the picture being that of a partial collapse of the right lung, with symptomatic improvement. On May 18, a puncture was made at the same point and the opening pressure was -4-5. The air passed more slowly into the pleural cavity than on previous occasions, and when 100 cc. had been introduced the valve was closed, and the fluctuations of the manometer were found to be free. Another 100 cc. was given, the valve was closed and the manometer read 0-1. The patient suddenly coughed and forced the fluid out of the manometer before this could be prevented. The needle was immediately removed from the chest wall, and because of the lessened quantity of air which had been injected on this occasion compared to

previous occasions, and the apparent feeling of comfort on the part of the patient, it was decided to attempt another puncture in the interspace directly above. This area was then anesthetized, the manometer refilled to zero, and the pneumothorax needle introduced. This procedure occupied approximately five minutes. While attempting to secure a reading before introducing air at this site the patient commenced to utter unintelligible sounds, and the right hand was seen to be trembling. The needle was at once withdrawn. The pulse was found to be rapid and soft, but fairly regular. The pupils were slightly dilated but equal in size. The left arm and limb were motionless. Slight cyanosis was present and the patient could not be made to talk, but seemed to understand what was said to him. He coughed, and about two or three cc. of bright red blood came from the mouth. Two hours later he could talk, but not well. He complained of pain but could not indicate the location, and he stated that his sight was entirely gone. During the afternoon he gradually became worse, and at 4 o'clock Dr. F. T. Stevens made the following neurological notations: "The patient rolls and tosses in the bed, talks incoherently and waves the right arm in the air; he seems to understand when spoken to if commanded sharply, and appears to be in pain. The left side of the face does not move as well as the right, and the right pupil is larger than the left, but both react to light and accommodation. The left arm and leg are completely motionless. The elbow, wrist, knee and achilles reflexes are increased on the left. The corresponding reflexes on the right are present but less active. Ankle clonus and Babinsky are present on the left, but not on the right. The abdominal reflex is marked on the right but is not obtained on the left."

Examination of the chest made immediately following the onset of unfavorable symptoms as well as later in the attack, with the exception of an increased amount of mucus over all lung areas, showed no appreciable change from the findings recorded prior to the attack. The patient died at 7 a. m. on May 19, 1920, twenty-one hours following the accident.

Autopsy three hours later: The brain presented no marked gross pathological changes, but was suggestive of a hemorrhagic encephalitis. No thrombi or air bubbles could be demonstrated in any of the vessels. A few suspicious-appearing areas were found on the right hemisphere, but sections taken from these areas and sent to Dr. R. C. Whitman, who kindly examined them, were reported as showing no leucocytic infiltration or edema, and no visible degeneration of the glia or ganglion cells to suggest inflammation. The heart was hypertrophied but otherwise normal. The right lung was bound to the chest wall by many adhesions, surrounding the area of compression (the result of former treatments) which was small but well defined. No free fluid or blood was to be seen in the pleural cavity. The visceral pleura was markedly thickened, but no perforation could be found, although the space separating the two pleurae at this point was not sufficient to pre-



clude this possibility. A marked vascularity on the visceral pleura immediately beneath the site of the puncture was noticed, but no opening or rupture was demonstrated. The left lung was comparatively free from disease, corresponding well with the physical findings. There was no other pathology of note.

#### Summary.

A tuberculous individual who had on several previous occasions undergone slight operations on the throat under local anesthesia, and puncture of whose chest had been done on six previous occasions with the introduction of air on three of these occasions, develops alarming symptoms some minutes after the introduction of 200 cc. of air at the site of previous punctures and immediately following a second puncture in an adjoining interspace without the introduction of air. At no time did the manometer record a positive pressure.

The symptoms, marked and well defined, were undoubtedly cerebral.

There was a probable injury to the lung at the second puncture, but none could be demonstrated.

Death occurred twenty-one hours following the operation.

The autopsy findings, either microscopic or macroscopic, were insufficient to explain the symptoms.

We feel inclined to attribute death to pleural reflex, rather than air embolism. No similar case has occurred in our experience.

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<sup>2</sup>Stivelman: Dangers of Artificial Pneumothorax. New York Medical Journal, Feb. 1, 1919.

<sup>3</sup>Wagner, W.: Das Empyem und seine Behandlung. Valkmanus Vortrage 197 Innere Medizin, Nr. 66, 1886.

<sup>4</sup>Brauer, L.: U. L. Spengler, Beiträge zur Klinik der Tuberculose, Brauers Beite, Bd. 14, H. 4, 1909.

<sup>5</sup>Minor, C. L.: Four and one-half years' use of Pneumothorax. American Review of Tuberculosis, Nov., 1917.

<sup>6</sup>Sundberg, C.: Drei Todesfälle mit Obduktion nach Behandlung von Lungentuberculose mit Künstlichem Pneumothorax.

#### DISCUSSION.

**Saling Simon, Denver:** This case as reported is the first one that I have heard of in recent years. When the pneumothorax was first introduced, frequent reports appeared in the literature of accidents of a similar kind occurring. These were largely attributed to the fact that the manometer was not used or that too much gas was injected. Whether death is due to pleural reflex or air embolism was never decided. That some deaths do and will occur, is beyond dispute, but in the experience of my confreres and my own in Denver, during the last four or five years, at any rate, no report of a similar accident has appeared. Just what the exact cause of death is, it would be difficult to state. The occasional unfortunate occurrence of such an accident as described by the essayists should not preclude the use of pneumothorax in practice. You will all recall how in the early days of salvarsan many accidents occurred with that, and how much fewer the accidents have become recently. The application of pneumothorax is comparatively infrequent, due to many factors; one reason is that most of us do not feel that we care to compress a lung where the other lung is also extensively involved, and another is the presence of dense adhesions of the parietal and visceral pleurae, which preclude its use. It would be a serious loss to the therapy of tuberculosis to be compelled to give up pneumothorax after the many good results we have seen from its use.

**John B. Crouch, Colorado Springs:** In regard to

these sudden deaths during pneumothorax, we have all heard of them, if we have done pneumothorax work to any extent. Fortunately, after treating a great many by this method we have had no cases that died suddenly during treatment. While washing out a pleural cavity at one time a patient was taken with one of these epileptic seizures, similar to the one Dr. Conway has described; he had convulsion after convulsion, and after a few days he died. Dr. Stevens saw that case with us. The case went to autopsy and we were unable to determine any cause of death. In another case I saw epileptic seizures while aspirating a patient. No air was introduced. I had aspirated this patient before and attempted to aspirate again, and as soon as the needle was introduced the patient had these clonic convulsions and was unconscious for about half an hour; the patient recovered completely in a short time. I don't believe there is such a thing as air embolism; there is, undoubtedly, a cortical irritation of some kind, but I don't know that it has ever been demonstrated. Once or twice in injecting salvarsan intravenously I have introduced air into the veins. Not long ago I was giving salvarsan and did not expel all the air from the tube. All at once a large air bubble went into the vein, but nothing occurred. Large quantities of air have been introduced into the veins of rabbits without any bad results, so that I don't think there is any such thing as air embolism; at least, if it does occur, we have never seen it.

**Arnold Minnig, Denver:** It is human nature not to mention our failures. I am glad that this afternoon some of the doctors have mentioned their failures. It seems to me failures are quite as instructive, and certainly more impressive, than our successes. The case which Dr. Conway has reported was certainly very thoroughly gone over from the beginning through to the postmortem. The case that he has reported and those Dr. Crouch has reported certainly suggest air embolism. I have administered pneumothorax for seven years now, and I have read about this pleural shock, and I have wondered why I didn't get it. One time when I first used pneumothorax I did think I got it while I was still using cocaine as an anesthetic. I had given this same patient cocaine before as an anesthetic, and apparently he did all right, but this time he went into shock, and I thought he was going to die. Since that time I have not used cocaine. I wonder whether these old pleural shocks, mentioned by the oldtimers, were not cases of cocaine poisoning? Nowadays, we are not using cocaine, but we do use other things, for instance, novocaine. Why wouldn't such cases have idiosyncrasies just as much as some people have idiosyncrasies to most anything? And I think that might explain some of these so-called pleural shocks, although you notice this is about the first case we have had reported for a long time—in other words, it is a curiosity. Everybody is using pneumothorax now, and it is used successfully.

**C. B. Ingraham, Denver:** The previous speaker stated that he did not believe that air embolism occurred. What I report has nothing to do with the subject of the paper—artificial pneumothorax—but is a case of air embolism. When a student interne in the Hartford Hospital I was unfortunate enough to not only see a case but to be directly the cause. In giving normal salt solution into a large vein in the arm, the rubber tubing slipped off the needle, and the woman died immediately, then and there; there could have been no other explanation for this death.

**S. W. Schaefer, Colorado Springs:** Dr. Conway's report is most interesting. However, the report of such an accident should not discourage the use of artificial pneumothorax. In the proper case it is the most valuable procedure we have for the treatment of pulmonary tuberculosis, and my tendency has certainly been to give it more frequently rather than less, and I think we often wait too long before giving it. Only recently, after keeping a patient in bed for a year without benefit, I gave pneumothorax with such a brilliant result that the family could not understand why it had not been given before.

In regard to air embolism, I had one case in which I think definitely it did occur. Only a small circumscribed pneumothorax was obtained, but with such good results that the treatment was continued. The air was put in under considerable pressure, and during one insufflation the patient suddenly complained of a numbness in the right arm and a queer feeling in his head. The needle was at once withdrawn, and on examination there was found a paralysis of the right arm and of the right side of the tongue, causing a thickening of speech. These symptoms and findings entirely cleared up in the course of a couple of hours, and



I cannot explain it except on the basis of air emboli.

**Dr. Conway (closing):** Dr. Simon has mentioned the discouraging effects resulting from fatalities of this kind, and Dr. Schaefer has just expressed his ideas along similar lines. In reporting this case our purpose was not to discourage the use of pneumothorax treatment with its wonderful results, but rather to issue an appeal to all operators, urging them to report every case which may be included under this classification. I think post-mortem examinations are necessary, and perhaps we are neglecting to complete our case reports because of the absence of autopsy findings. If this were done, the cause of these accidents might be definitely determined.

Dr. Minnig has stated that solutions of cocaine when used were considered as a cause of death. It is our custom to use equal parts of one percent solution of novocaine and a one to one thousand solution of adrenalin chloride. We had, on one previous occasion, anesthetized our patient in three different places, giving a total quantity of one and one-half cubic centimeters of each solution, but at the time of the accident the chest wall had been anesthetized in only two places and only one cubic centimeter of each solution was given, so we did not consider the solution to have been the cause in this case.

There is probably no doubt that fatalities are now much less frequent than when pneumothorax was first used in the treatment of tuberculosis, but they are still too common and possibly, by study and observation, we may be able to eliminate such occurrences entirely.

## News Notes

Dr. J. W. Ames of Denver returned home early in July following a month's vacation spent in New England.

Two doctors who recently located in Loveland are described in the Loveland Herald as "surgical physicians".

Dr. C. G. Stivers of Los Angeles, Cal., is interested in the work of standardizing methods for the correction of speech defects, and in this connection has been visiting universities and speech clinics in various parts of the country. He was in Denver on Sunday, July 10, to confer with local physicians who are interested in this problem.

Dr. William H. Crisp of Denver started eastward July 2 with his family on a two months' automobile trip, and if his plans do not miscarry will visit Washington, New York, New England and possibly eastern Canada.

The death of Dr. Robert Guthrie, a recent graduate of the University of Colorado medical school, son of Dr. E. C. Guthrie of Denver, occurred July 2. Dr. Guthrie's medical training was interrupted by service in the army during the world war, his medical degree being attained later.

Dr. R. H. Good, recently of Gunnison, has moved to Telluride to be associated with Dr. C. H. Tidd in the Telluride hospital.

Dr. Henry Sewall of Denver, who recently spent some weeks wandering around over this side of the globe, has returned to his practice and, judging from the character of his telephone conversation, is again under full steam.

The Colorado Society of Clinical Pathologists was organized on March 14 with Dr. Philip Hillkowitz of Denver as president and Dr. Ward Burdick of city is to be state-wide. Meetings will occur four times a year on the third Thursday of each calendar quarter. It is hoped to materially increase the present membership of eight by appeal to all duly qualified medical graduates in the state who limit their work to clinical pathology.

Dr. W. D. James, a former Denver member of the Colorado State Medical Society, returned in June from U. S. P. H. service at Gallup, New Mexico, to resume practice in Denver.

Sedgwick, Colorado, is in need of a physician. A young married man is preferred. Anyone desiring to investigate this opening may communicate with Mr. J. R. Reitz, Adams Hotel, Denver.

Dr. G. R. Warner has moved from Grand Junction to Denver, where he has opened offices for practice in the California Building.

Dr. R. L. Charles of Denver left early in July to spend a month on the Pacific coast.

Dr. C. S. Elder has returned to Denver and established offices at 802 Majestic Building.

Dr. J. L. Mortimer of Denver offers office facilities

from 3 to 5 p. m. to a young doctor in exchange for laboratory and clinical assistance.

The Secretary of the State Society acknowledges receipt of the programs of the meetings of the Oregon State Medical Association, June 30 to July 1 and 2, at Portland; Nevada State Medical Association, June 24 and 25, at Elko; and the Medical Association of Montana, July 13 and 14, at Billings.

The proposed Public Health Institute which the U. S. Public Health Service contemplated holding in Washington, D. C., during the fall of 1921, has been indefinitely postponed. This action has been decided upon after several conferences between officers of the service and officers of the American Public Health Association.

The fiftieth annual meeting of the American Public Health Association is to be held in New York City, November 14-18, 1921. Several other activities are planned by the association in connection with their semi-centennial meeting in November, 1921, and it was at the request of the American Public Health Association that the service institute for next fall was abandoned.

## DEATHS.

Dr. Michael D. Healy of Denver died suddenly of heart disease June 24, while on an outing in the mountains. Dr. Healy had lived in Denver fourteen years, having come to this country from Ireland, where he had graduated from Dublin University and had service in the Rotunda. After coming to Denver he completed his medical course at the Denver and Gross College of Medicine. In the year preceding his death he had been president of the staff of St. Joseph's Hospital. He was born in County of Cork, Ireland, in 1881.

## Book Reviews

**Annual Reprint of the Reports of the Council on Pharmacy and Chemistry** of the American Medical Association for 1920. Cloth. Price, postpaid, \$1.00; pages, 72. Chicago: American Medical Association, 1921.

While New and Nonofficial Remedies consists in part of descriptions of those proprietary medicines which the Council deemed worthy of consideration by the medical profession, the Annual Reports of the Council on Pharmacy and Chemistry describe the preparations which the Council finds unworthy of recognition. In addition, these annual reports contain other announcements of the Council.

The present volume contains a number of interesting reports. Thus we find a statement which makes it clear that many of the large pharmaceutical houses are definitely opposed to the work of the Council and will remain antagonistic until a very large proportion of the medical profession will give the Council their active support. The volume also contains a report on some digitalis preparations which the Council examined and declared to be pharmacopial digitalis products and therefore do not require the control of the Council.

Of the reports on proprietary medicines found unacceptable for New and Nonofficial Remedies there are reports on the following which, because of the publicity given the products by their exploiters, will be of special interest to physicians: Platt's Chlorides, Syrup Leptino (formerly Syrup Balsamea), Sukro-Serum, Spirocide, Libradol, Supsalvs.

Of considerable interest are reports on a number of products which were admitted to New and Nonofficial Remedies on the basis of evidence which at the time seemed to indicate the products to have therapeutic merit, but which did not stand the test of time and which therefore have been omitted from the 1921 edition of New and Nonofficial Remedies. These reports give evidence that great care is taken to keep New and Nonofficial Remedies up to date.

Those who are not familiar with the methods of the Council in the examination of new medications or who may even have been inclined to look upon the acceptance or rejection of a medicament by the Council as a somewhat perfunctory procedure, should read the report of "Chloryptus"—a chlorinated eucalyptus oil. Its proprietor believed it to be a most efficient wound antiseptic. He presented to the Council many lengthy reports of laboratory tests and of clinical trial. The Council found the evidence inconclusive and refused recognition to the product. The discoverer of Chloryptus apparently has accepted the conclusion



of the Council—at all events it is not being pushed—and thus many a physician is spared the temptation of experimenting with a new drug which in the end will but add to his long list of medications which have been tried and found wanting.

**A Text-Book of Pathology.** By Alfred Stengel, M.D., Sc.D., Professor of Medicine, University of Pennsylvania, and Herbert Fox, M.D., Director of the Pepper Laboratory of Clinical Medicine, University of Pennsylvania. Seventh edition, reset. Octavo of 1,111 pages with 509 text illustrations, many in colors, and 15 colored plates. Philadelphia and London: W. B. Saunders Company. 1921. Cloth, \$8.50 net.

When a medical book has gone through seven large editions, the fact is self-evident that it fulfills acceptably a useful purpose. A very great advantage in these frequent successive editions is the opportunity for up-to-date revisions, and the presentation of the very newest authentic discoveries in pathology; e. g., the discussion of Noguchi's *Leptospira icteroides* as the cause of yellow fever, and the short section upon the relation of encephalitis lethargica to influenza and other infections. Naturally, the most important requisite in a work of this kind is good illustrations, and we find here in a copious array of artistic and instructive reproductions of macroscopic and microscopic pathologic specimens, many of these illustrations being executed faithfully in colors. Within the limits of a not unwieldy single volume the authors have covered the allied fields of pathology in a concise, comprehensive and altogether admirable manner, and the latest edition yields added luster to a work long regarded as a standard. E. C. H.

#### High Mortality Rates Challenge National Consensus.

In the United States, in 1919, one mother died for every 135 babies born, and every eleventh baby born died before he was a year old. That these rates are excessive is shown in "Save the Youngest," a bulletin issued by the U. S. Department of Labor through the Children's Bureau, and just revised to compare the latest rates for the United States with those for foreign countries.

Six countries are shown to have a lower infant mortality, and sixteen in a group of seventeen, a lower maternal mortality, than the United States. Not only do we lose more mothers in proportion to births than practically any other civilized country, but we apparently lose more on an average each year than the year before. Whereas in other countries there has been a decrease in the death rate from childbirth, the rate in the United States rose from 6.1 per 1,000 births in 1915 to 6.2 in 1916, 6.6 in 1917 and to 7.4 in 1919. Moreover, in this country there is no appreciable decrease in the proportion of babies who die from causes largely connected with the care and condition of the mother.

Experience has proved, the bulletin points out, that thousands of deaths of both mothers and children could be prevented every year by public measures for the protection of maternity and infancy. In New York City, among 4,496 mothers who were supervised by the New York Maternity Center Association before and after the birth of their babies, the maternal mortality rate was less than one-third the rate of the United States and the rate for deaths in early infancy was less than half that for the city as a whole. In other cities of the United States and in foreign countries the institution of infant welfare measures has been followed by greatly decreased rates.

Measures which have proved successful in preventing this waste of life among mothers and babies include the following: Prompt and accurate birth registration, health centers, public health nurses, special clinics, trained attendance at childbirth, adequate hospital service, education of the mother in maternity and child hygiene, and education of the general public in the significance of and necessity for maternal and infant health.—U. S. Department of Labor, Children's Bureau, Washington.

#### NEW AND NONOFFICIAL REMEDIES.

During June the following articles were accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

The Abbott Laboratories: Saligenin.  
Armour & Co.: Suprarenalin Base; Suprarenalin Ointment.

E. Bilhuber: Santyl Capsules.

The Calco Chemical Co.: Amidopyrine-Calco.  
Hynson, Westcott & Dunning: Tablets Mercurochrome, 220-Soluble.

H. A. Metz Laboratories: Orthoform.

Winthrop Chemical Co.: Mesotan.

Nonproprietary Articles: Amidopyrine.

#### Twenty-fourth Annual Meeting of the Medical Library Association.

The twenty-fourth annual meeting of the Medical Library Association, whose membership includes all of the larger medical libraries of the country, and a large number of individual members, consisting of those interested in furthering medical library work, was held in Boston June 6, 7, 8, 1921. The business meetings of the association were held in the Boston Medical Library. In addition to the address of the president, the program contained the report of a committee on standard classification, and the system used in the Boston Medical Library, and this as explained by the chairman, Mr. James F. Ballard, was adopted as being the most practical solution for meeting the perplexing problems of classification. This was followed by a discussion on reference aids, which was opened by Mrs. Grace W. Myers of the Treadwell Library of the Massachusetts General Hospital. An evening meeting, which was largely attended, was addressed by the president, Dr. John W. Farlow of the Boston Medical Library. This was followed by an interesting paper, illustrated by lantern slides, by George S. Huntington, of New York City, entitled "Some Historical Facts Concerning the Catoptron of Johannes Remmelinus, and the Superimposed Anatomical Plate During the Early Part of the Seventeenth Century." Following this Dr. Malcolm Storer of Boston read a paper entitled "Interesting Medical Medals."

In addition to the regular program visits were made to the various libraries in Boston. In each case the members of the association were shown over the buildings and the various points of interest explained. Visits were made to the Harvard Medical School Library, Boston Public Library, Harvard College Library, Treadwell Library and the Boston Athenaeum Library. Of particular interest was an exhibit of rare medical items from the library of Dr. Edward C. Streeter of Boston, spread in the exhibition room of the Boston Public Library. The exhibit was specifically epidemiological, the essential literature on fevers from Hippocrates to Lanceli, with a few sections such as Plague, Syphilis, Venesection superadded.

The permanent headquarters of the Medical Library Association are in the Medical and Surgical Faculty Building, at 1211 Cathedral Street, Baltimore, Md.

#### Probation in Children's Courts.

The probation method of dealing with delinquents costs in New York state approximately one-eighth as much as institutional care. Such information as is available clearly shows that probation, properly administered, is successful in a large majority of children's cases, according to a report on Probation in Children's Courts, just issued by the U. S. Department of Labor through the Children's Bureau. This is one of a series of reports whose purpose is to aid in the development of higher standards in juvenile court work.

Probation has been in operation in this country forty-three years. As applied to juveniles, it is recognized in the laws of all the states, save one, and in many foreign countries. It is the cornerstone of the juvenile court.

The report deals with probation methods as applied to children's cases. It points out the necessity for thorough preliminary study of every child who comes before the court, and the importance of physical and mental examinations. Various means by which the probation officer is enabled to keep in close touch with his charges are described. The report also discusses the organization of the probation staff and the training and selection of probation officers.

Earlier studies by the Children's Bureau have shown the need for more adequate probation service, especially in small cities and rural communities. State supervision of probation work by state probation commissions, state probation officers, or other supervisory agencies has been found to be one of the best means for extending and standardizing probation. Only a few states have provided such supervision. Indiana last March passed a law providing for a state probation officer with supervisory powers.—U. S. Department of Labor, Children's Bureau.



# MEDICAL COLORADOANA

(Continued from April, 1921.)

## CONTRIBUTIONS OF COLORADO PHYSICIANS PUBLISHED IN THE MEDICAL NEWS.

(Addendum)

SEDWICK, W. A., Pueblo:

A New Instrument. Vol. 84, No. 25, p. 1175.

## CONTRIBUTIONS OF COLORADO PHYSICIANS PUBLISHED IN THE CLIMATOLOGIST (PHILADELPHIA).

ESKRIDGE, J. T., Denver:

Chorea in Relation to Climate, Especially the Climate of Colorado. Vol. I, 1891, p. 53.

Nervo-vascular Disturbances in Unacclimated Persons in Colorado. Vol. II, 1892, p. 66.

FISK, S. A., Denver:

Further Consideration of the Analysis of Recorded Cases of Phthisis Pulmonalis. Vol. I, 1891, p. 342.

JAYNE, WALTER A., Denver:

An Experience With Diphtheria at a High Altitude. Vol. II, 1892, p. 208.

KEATING, JOHN M., Colorado Springs:

"Rest Cure" in the Treatment of Incipient Phthisis. Vol. I, 1891, p. 348.

Verbum Sat Sapienti, No. 2. Vol II, p. 172.

MOORE, H. B., Colorado Springs:

The Influence of High Altitudes Upon Heredity in Tuberculosis and Its Effects Upon Some Forms Other Than Pulmonary. Vol. II, 1892, p. 313.

RUEDI, CARL, Denver:

On Indications and Contraindications of High Altitude in Phthisis. Vol. II, 1892, p. 356.

SOLLY, S. E., Colorado Springs:

The Personal Equation in the Treatment of Phthisis. Vol. I, 1891, p. 82.

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ANDERSON, B. P., Colorado Springs:

High Altitude in the Treatment of Phthisis. Vol. I, 1895, p. 64.

AXTEL, E. R., Denver:

What Colorado and Creosote Have Done for Four Tubercular Cases and How It Has Been Done. Vol. I, 1895, p. 53.

Tent Life for Consumptives—the Rocky Mountain Tenting Tour Association—Health-Gaining Made a Pleasure. Vol. I, 1895, p. 159.

Chronic Tuberculosis—A Study of Four Cases. Vol. I, 1895, p. 192.

BONESTEEL, ARTHUR E., Central City:

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DENISON, C., Denver:

What Is Tuberculin? Vol. I, 1894, p. 14.

Ten Questions Concerning Phthisis as Affected by the Colorado Climate Proposed by the

"Colorado Climatologist" Answered by Charles Denison. Vol. I, 1895, p. 70.

Climatic Influence of Forests, With Special Reference to the Conservation of Tree Growth in Colorado. Vol. I, 1895, p. 79.

ESKRIDGE, J. T., Denver

The Relation of Colorado Climate to Nervous Diseases. Vol. I, 1895, p. 66.

Report of a Case of Chronic Poliomyelitis and One of Recurrent Multiple Neuritis. Vol. I, 1895, p. 105.

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Surgical Technique. Vol. I, 1894, p. 91.

Colorado Surgery. Vol. I, 1895, p. 114.

GRANT, W. W., Denver:

Some Erroneous Impressions Which Have Heretofore Obtained Concerning Climate of Colorado. Vol. I, 1894, p. 90.

HALL, J. N., Denver:

Shall Patients With Heart Disease Come to Colorado? Vol. I, 1894, p. 88.

Camping Out for Incipient Tuberculosis. Vol. I, 1895, p. 163.

How Long Shall Phthisical Patients Remain in Colorado? Vol. I, 1894, p. 27.

HARKINS, ELIZABETH R., Greeley:

The Climate of Colorado in the Early Treatment of Pulmonary Tuberculosis. Vol. I, 1895, p. 155.

HERSHEY, E. P., Denver:

Colorado in the Treatment of Phthisis. Vol. I, 1894, p. 32.

HUFFMAN, O. C., Denver:

The Contagiousness of Pulmonary Phthisis and the Measures Necessary to Prevent Its Spread. Vol. I, 1894, p. 37.

LYMAN, C. B., Denver:

A Few Fractures. Vol. I, 1895, p. 170.

MANLY, CHARLES S., Denver:

Unfavorable Cases of Phthisis for Altitude Treatment—Cases That Should Not Have Been Sent to Colorado. Vol. I, 1895, p. 144.

Obituary. Vol. I, 1895, p. 177.

The Importance of Rational Methods in the Diagnosis of Phthisis With Special Reference to Pre-tuberculosis. Vol. I, 1895, p. 289.

MUNN, WM. P., Denver:

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#### Saving Babies in New Zealand.

Over one-fourth of the babies born in New Zealand, the children of well-to-do as well as of poor parents, are reached by the infant welfare measures in force in that country. How effective these measures have been in saving the lives of babies is shown in a striking manner in a summary of a forthcoming report "Infant Mortality and Preventive Work in New Zealand," just made available by the U. S. Department of Labor through the Children's Bureau.

In a period of forty-five years, according to this report, the infant mortality rate in New Zealand has been more than cut in half, until now it is the lowest rate of any country in the world. During the last ten years the rate of decrease has been almost double what it was for the preceding decade. Within fifteen years the mortality from gastric and intestinal diseases, the most deadly of all diseases to babies, has been reduced four-fifths. The rate of decrease in respiratory diseases during the past fifteen years has been over three times the rate of decrease during the preceding twenty.

There has been a slight decrease during the past few years even in deaths from diseases of early infancy.

While a mild climate and favorable housing and economic conditions, the report points out, may explain the low rate in New Zealand, these factors alone can not explain the decrease which has taken place. Beginning in 1901 and covering the period in which there was the greatest decline, the government has given special attention to the problem of providing suitable maternity and infant care. Among important public measures described in the report are regulations for the training and practice of nurses and midwives, the establishment of state maternity hospitals, and more careful supervision of homes in which children are boarded out. The government also subsidizes the work of the Royal New Zealand Society for the Health of Women and Children. One of the most important activities of this society is an extensive system of baby health centers at which specially trained nurses give free advice and instruction to mothers.—U. S. Department of Labor, Children's Bureau.

#### A BUST OF MORTON FOR THE HALL OF FAME.

##### Send Your Contribution Now.

In the election of Dr. William T. G. Morton to the Hall of Fame the allied professions of medicine and dentistry have been singularly honored. By their overwhelming vote the electors have also evidenced the appreciation of the public at large for the beneficence of anesthesia.

Recently, at the annual dinner of the American Anesthetists in Boston, during A. M. A. Week, Dr. S. Adolphus Knopf, a leading advocate for the honoring of Morton, said it would be a proud privilege for the Associated Anesthetists to place a bronze bust of Morton in the niche assigned him by the electors. This is to be done on October 16, in celebration of the diamond jubilee anniversary of Morton's first public demonstration of ether anesthesia.

The Associated Anesthetists, as well as other prominent leaders of the allied professions, are, therefore, urging all those interested to make a substantial contribution for this purpose.

Kindly send your check or money order at once to  
Yours appreciatively,

F. H. McMECHAN, M.D.,  
Secretary-Treasurer, Associated Anesthetists,  
Lake Shore Road, Avon Lake, Ohio.

#### Conservation of Child Life and Health.

Preliminary plans for a child health demonstration, unique in character and scope and promising to prove of first importance in the general movement for conservation of child life and health, have been announced by the National Child Health Council, with headquarters in Washington, D. C. With an appropriation of \$200,000 set aside for this purpose the council, composed of six leading national health bodies, will assist some American community of between 20,000 and 30,000 population and the surrounding county in securing as nearly as possible ideal conditions for the development of its children, from babyhood to adolescence, into sturdy, happy, useful citizens.

The first step will be the selection by a committee of experts of the community in which the demonstration will be carried on over a period of five years. Geographical limitations are not imposed in the selection of the community but the council believes the following qualifications will insure that the results are of greatest benefit to the entire country:

The town or city should be located in a county of between 50,000 and 60,000 population. The population should be fairly stable.

The age distribution of the population should be fairly near the average, especially as to the percentage of children and babies.

There should not be any strikingly predominant racial stocks.

The city or town should have a normal percentage of its population engaged in manufacturing.

There should be a variety of industries in the city.

The surrounding area should be agricultural territory.

The town should be in a birth-registration state and should have fairly complete vital statistics.

The mortality of infants and children should not be strikingly abnormal. Health conditions should not be abnormally good or bad and health machinery, including state laws, local ordinances and personnel, should be equal to those of a community of similar size.



# Colorado Medicine

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## Editorial Comment

### STATE MEETING TO BEGIN ON WEDNESDAY

The attention of members is called to the day of the week on which the coming annual meeting of the Society will begin. The precedent of having the first general session on Tuesday morning will not be followed this year, the committee on arrangements having determined that a day later would better serve all purposes. The first meeting of the House of Delegates will be held Tuesday evening, October 4, and the first general session Wednesday morning, October 5.

The headquarters of the Society during the meeting will be the Congress hotel.

### THE SCIENTIFIC PROGRAM.

The committee on scientific work of the Colorado State Medical Society has presented the list of papers submitted for places on the program of the Pueblo meeting. It appears elsewhere in this issue.

The program will include three honor guests, who are to present timely and interesting subjects which will render the program unusually attractive.

It has been pleasing to the committee to find the responses so widely representative of the state profession.

It was hoped to be able to distribute the finished program with the issue of the journal preceding the meeting, but owing to the high cost of printing and paper, it was thought advisable to curtail expenses and to announce that the members desiring programs in advance of the meeting will be supplied upon request by the chairman of the committee.

G. A. MOLEEN, Chairman.

### TITLES SUBMITTED FOR THE PROGRAM OF THE COLORADO STATE MEDICAL SOCIETY.

(Excerpt From Chapter IV of the By-Laws of the Colorado State Medical Society.)

Sec. 4. The order of exercises, papers and discussions as set forth in the official program shall be followed, except when otherwise ordered by a two-thirds vote.

Sec. 6. No paper or address, except those of the president and appointed orators, shall occupy more than fifteen minutes in its delivery. No member shall occupy more than five minutes in discussion, nor speak more than once on the same subject.

except the writer of the paper, who may close the discussion. No paper previously read before any society or published may be read before this society.

Every paper read before the society shall be its exclusive property, and shall be deposited with the secretary when read. If not so deposited, the committee on publication may decline to publish it.)

#### Guests:

1. Bone Repair Following Injury and Infection  
.....Dr. F. W. Bancroft, New York City
2. Diverticulitis of the Large Bowel.....  
....Dr. James C. Masson, Rochester, Minn.
3. Bone Surgery .....  
.....Dr. John F. Golden, Chicago, Ill.

#### Members:

4. Extra-Uterine Gestation .....  
.....Dr. H. R. Bull, Grand Junction
5. Some Considerations of Spinal Cord Tumors  
.....Dr Philip Work, Pueblo
6. Medical Coloradoana..Dr. C. D. Spivak, Denver
7. Appendicitis as a Cause of Intestinal Stasis  
.....Dr. L. M. Van Meter, Denver
8. Chorio-Epithelioma With a Case Report....  
.....Dr. L. W. Bortree, Colorado Springs
9. Present Status of Diphtheria.....  
.....Dr. M. R. Fox, Sterling
10. Safe Senile Cataract Extraction.....  
....Drs. H. M. and J. W. Thompson, Pueblo
11. Pulmonary Abscess .....  
.....Dr. M. O. Shivers, Colorado Springs
12. Feeding the New-Born.....  
.....Dr. F. W. Gengenbach, Denver
13. Malnutrition in Infancy and Childhood....  
..Dr. Elmer L. Timmons, Colorado Springs
14. Differential Diagnosis of Appendicitis.....  
.....Dr. L. J. Weldon, Denver
15. The Acute Abdomen..Dr. W. W. Grant, Denver
16. Early Diagnosis and Treatment of Cancer of the Uterus....Dr. Robert T. Frank, Denver
17. Joint Injuries With Special Reference to Fractures Extending Into Joints.....  
.....Dr. C. E. Tennant, Denver
18. The Removal of the Astragalus in Old Cases of Infantile Paralysis.....  
.....Dr. R. G. Packard, Denver
19. The Anatomical and Functional Differences of the Germ and the Somatic Cell.....  
.....Dr. G. A. Boyd, Colorado Springs
20. A Case of Orbital Cellulitis Involving Both Orbits With a Thrombo-Phlebitis of Retro-Orbital Veins Caused by Interstitial Gingivitis of the Front Teeth.....  
.....Dr. J. A. McCaw, Denver
21. Median Bar Formation.....  
.....Dr. William M. Spitzer, Denver

22. Treatment of Non-Tuberculous Infections of the Chest Following Infections From the Respiratory Tract .....Dr. T. E. Carmody, Denver
23. Relations of Infections of Upper Respiratory Tract to Non-Tuberculous Infections of the Chest.....Dr. M. D. Brown, Denver
24. Trichomonas Vaginalis Vaginitis.....J. B. Hartwell, Colorado Springs
25. The Diagnosis and Treatment of Gallbladder Affections.....Dr. J. R. Espey, Denver
26. Indications for Surgical Treatment of Goiters..Dr. J. U. Sickenberger, Grand Junction
27. Pneumococcus Mastoiditis Without Otitis Media.....Dr. L. T. Richie, Trinidad
28. Cystitis and Its Diagnosis.....Dr. H. T. Low, Pueblo
29. On the Coincidence in the Same Patient of Gall Stones and Kidney Stones.....Dr. Leonard Freeman, Denver
30. Indiscriminate Diagnosis of Tuberculosis...Dr. Maurice Levy, Denver
31. The Influence of Carbon Dioxide on the Tubercle Bacillus...Dr. Harry Gauss, Denver
32. Chronic Non-Tuberculous Pulmonary Suppurations.....Dr. L. W. Frank, Denver
33. Restoration of Function in Hydronephrosis.....Dr. O. S. Fowler, Denver
34. The Stomach and the Circulatory System as Related to Each Other.....Dr. J. L. Mortimer, Denver
35. Stricture of the Male Urethra.....Dr. John B. Davis, Denver
36. Chorio-Epithelioma With Report of Cases...Dr. H. A. Black, Pueblo

#### STATE BOARD OF HEALTH NOTES.

In this issue will be found an article furnished by the Colorado State Board of Health which gives practical instructions for the construction of a sewage disposal system for country homes, small mountain resorts, small hotels, etc.

The septic tank described is being used in very many places over the state and has been proved to be quite practical and efficient from every standpoint. The State Board of Health will gladly furnish free of charge blue prints and specifications to anyone who may wish to construct a sewage disposal system, and when needed, will send a man to supervise the construction.

The widespread use of these tanks already made is not only an evidence of their successful operation, but testifies also to earnest and aggressive work on the part of the State Board.

#### A NEW JOURNAL OF GASTROENTEROLOGY.

A notable addition to the monthly array of medical journals is The International Journal of Gastro-Enterology, whose initial number, July, 1921, has just been offered to the profession. It is one of the most attractive journals in style and in scientific material which it has been our pleasure to review. It presents certain innovations which are unquestionably pleasing; for instance, not one line of advertising appears, even the cover pages being utilized for the continu-

ation of editorial matter. Another original feature exists in the commentaries which follow the scientific articles. An article which is accepted by the editor is submitted, before publication, to several physicians who are considered to be versed in the subject discussed, their commentaries are solicited and such as are received are published with the article. The first issue of the journal is replete with illustrations and the names of Carey, Smithies, Radasch, Soresi, Gordon, Bodkin, Cornwall, Pauchet of Paris, Ponzio of Torino and others appear as authors. While most of the contents are in English there is one review in Italian and a case report in French.

The following is an editorial statement of the purposes of this new entrant into the domain of medical literature: "We aim to publish a journal which will be useful to the specialist as well as to the general practitioner. It will contain reading matter that will enhance their knowledge and stimulate the study of problems relating to gastro-enterology and allied branches of medicine. We will publish original papers that will be instructive per se and rendered more valuable by the commentaries of men of such high scientific standard as those who have commented upon the communications appearing in this issue".

Through the courtesy of its editor, Angelo L. Soresi, M.D., The International Journal of Gastro-Enterology will exchange issues with Colorado Medicine and we trust it will take its place regularly upon the shelves of the library of the Colorado State Medical Society.

#### CHRISTIAN SCIENCE TAKES EXCEPTION.

It is not the policy of Colorado Medicine to engage in editorial controversy. The following letter is published simply out of fair-mindedness and a desire to right an error if such has been made.

To Colorado Medicine:

The comments in your columns on faith healing are of interest and indicate a spirit of fairness as well as careful observation of the methods employed by the much talked of revivalist who has recently visited Denver. However, owing to the character of the reference used in writing of Christian Science, an error was voiced in classifying Christian Science with the teaching of a mesmerist named Quimby, to whom Mrs. Eddy went for help many years before her discovery of Christian Science. Your evident fairness prompts me to offer this word of correction.

Because of her intense religious nature Mrs. Eddy at first believed that the relief received by her under Quimby's treatment was from God, but Quimby scoffed at the idea, and later Mrs. Eddy saw his work in its true light. The claim that his theories furnished the basis for Christian Science was never substantiated, but, on the contrary, was refuted many years ago when Mrs. Eddy's copyright was upheld in court against the claim of a plagiarist who as-



serted that her writings were rehashed from Quimby.

It should also be stated that the Christian Science classification of disease as unreal, untrue, is not from the viewpoint of the physical sense testimony, but rather from the spiritual standpoint that God, good, infinite Truth, is not the author of sickness, hence it is not veritable or true in the sight of Him, who "is of purer eyes than to behold evil," as the Bible states.

W. STUART BOOTH,

Christian Science Committee on Publication.

## *Original Articles*

### **SPOROTRICHOSIS; A CASE REPORT.\***

C. E. TENNANT, M.D., AND W. S. DENNIS, M.D.,  
DENVER.

This disease, which was first discovered and discussed by Schenck in 1898, and later confirmed by Hektoen and Perkins and since thoroughly established by experimental investigation of De Buermann and Gougerot, is an infectious parasitic malady due to the *Sporothrix*. It is characterized by the formation of multiple abscesses in the skin and subcutaneous structures and, occasionally, in one or more of the internal

organs. It is most frequently seen in France, the United States coming next in number of cases; England and Germany so far recording but few cases. The disease, however, is doubtless world-wide and is not so rare as recorded observations would indicate, as cases simulative of syphilitic gummata may have been treated with iodids, with recovery, and the error in diagnosis remained undiscovered.<sup>1</sup>

*Sporotrichium* is classified with the pathologic fungi under the heading of the *Hyphomycetes*. It is generally believed that three distinct varieties of this fungus have been identified, but certain authorities express doubt and think they should all be considered as one. The type of fungus found in North American cases bears Schenck's name.

Hamburger in 1912<sup>2</sup> analyzed all of the American cases recorded. He shows that more than seven-eighths of these cases became infected while residing in the Mississippi river basin. While systemic Sporotrichosis (extra-cutaneous Sporotrichosis-Buermann) may occur, Hamburger, writing at that time, was not aware of such a case being reported.

The case here reported occurred in a sixteen year old male, residing at Stratton, Colorado. It being generally recognized, in France at least, that the incidence of infection is high among agricultural people, his occupation as a bank clerk has no bearing. The patient stated that early in August, 1920, he had a number of mosquito bites upon his legs, between the knee and

\*Read before the Medical Society of the City and County of Denver, May 3, 1921.



Fig. 1.



ankle. A suggestion as to the possible source of infection is contained within the fact that at the time of having these mosquito bites he had been bathing in a semi-stagnant stream in his locality. At any rate a short time later he became aware of what he describes as a "sore pimple" on the outer aspect of the left leg, at about the junction of the middle and lower thirds. At this site a firm nodule formed. This nodule was below the skin surface and developed slowly to about the size of a cherry. It began to soften and take on a purplish color. During and following this development other nodules appeared, in sequence, one above the other, in almost a straight line, due to the fact that the infection traverses the deep lymphatics. These were also firm and deep and, after reaching the size of a cherry, took on the same discoloration with softening. Spontaneous rupture did not occur. The lesions were incised when they became softened and a thick, bloody, semi-purulent material escaped. There was no attempt at healing. Other nodules made their appearance, circumferentially, around the primary lesion and these, after going through the same process of development, merged together forming large ulcerated areas.

When this patient was first seen, some three months after the onset, the leg was in the condition as is shown in cut 1. The surface of the ulcerated areas was unhealthy. The skin edges were slightly sunken, discolored and sloughing. While these ulcers were not entirely painless, the discomfort was small compared with the loss of tissue. There was no particular systemic reaction and the eosinophilia which is often associated with these cases did not present itself. As neither tuberculosis nor syphilis was suspected, a probable diagnosis of sporotrichosis was made and Dr. A. J. Markley confirmed this diagnosis. Owing to the fact that for two months or more antiseptics had been used locally and also because of the considerable amount of surface infection, a growth for confirmation was secured with difficulty, and a very sparse one at that.

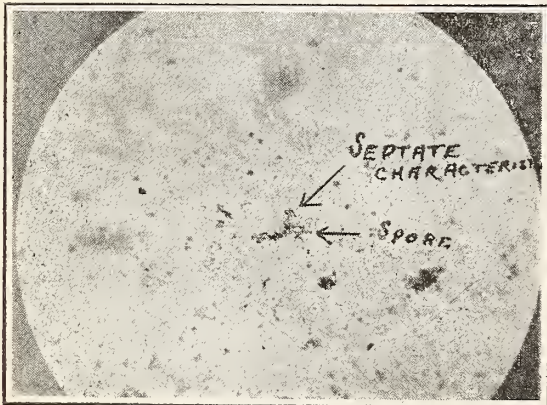


Fig. 2.

The treatment in this case has been varied. Besides K. I., administered internally, x-ray, light therapy, Bier's hyperemia and strapping

with adhesive have been used. Since this condition is considered to be very resistant to treatment, the progress, though slow, has been satisfactory. The lesions are now, some eight months after the initial infection, completely healed, although the epidermis is very thin.

In the center of the micro-photograph is to be seen a tangled mass of mycelia and spores, while indistinct spores can be distinguished around about the periphery of the clump. To the right is to be seen a single spore occurring at the extremity of a single mycelium. In this mycelium and in the one resting diagonally to the upright limb of the mass can be seen their irregularly septate characteristics. (Gram's stain from glucose agar.) Agglutination tests were abandoned after several unsuccessful attempts to secure sufficient growth uncontaminated.

#### References.

- <sup>1</sup>Stelwagon: Diseases of the Skin, 1918.
- <sup>2</sup>Hamburger, W. W.: J. A. M. A., November 2, 1912, p. 1590.
- <sup>3</sup>Park and Williams: Pathogenic Micro-organisms, 1920.

#### SPECIFICATIONS FOR A SIMPLE SEPTIC TANK.

J. W. MORGAN, M.D., Denver.

Inspector, Colorado State Board of Health.

1. The cut below shows a simple and inexpensive method of sewage disposal for the isolated dwelling, institution or small group of houses supplied with running water and provided with toilet, sink and bath fixtures.

2. Septic tanks can best be constructed of concrete, particularly because they must be water-tight. If a 1:2:3 concrete is used, this end will be secured. The mixture mentioned means 1 sack of Portland cement, 2 cubic feet of clean, coarse sand, evenly graded from the fine particles up to those that will just pass a ¼-inch mesh screen, and 3 cubic feet of clean, well-graded pebbles or broken stone, the particles of which vary in size from ¼ to 1¼ inches. Enough water should be used to produce a mixture of quaky consistency, so that the concrete when placed will settle to all parts of the forms when slightly jogged or puddled with a spade or similar tool. Reinforcing, of course, must be chosen and used in accordance with the size of the particular tank.

3. Modern sanitary plumbing for buildings has made two things necessary, namely, a supply of water under pressure and a reliable method of sewage treatment and disposal.

From experience a tight, well-built septic tank is the safest method of sewage treatment. The septic tank of itself does only one thing—that is decomposes and liquefies sewage. When this is done some form of sewage disposal of the liquid must be provided. Farm tile, with shallow distribution of the liquid in porous soil is generally used for disposal purposes. Remember, a septic tank of itself does not completely purify sewage.

We have, then, two things necessary—the treatment of the sewage by the septic-tank process and the disposal of the liquid sewage; and to successfully operate the process of tank treatment and the disposal of the liquid the third part is



necessary, that is some means to cause the septic tank treatment process to operate with the method of liquid disposal.

To properly use a disposal system and maintain its efficiency it must be dosed or filled at one time with a fixed amount of liquid. This is necessary, as it absorbs liquid at one time to its full capacity, then receives no liquid for a period of time in order to dry out for the next absorbing operation.

To make the treatment and disposal of sewage complete the following are then necessary: the septic tank chamber to decompose and liquefy sewage, the disposal field of farm tile or sand-filled bed and the siphon chamber and siphon to cause the liquefying process and disposal system to act together.

4. In the construction of a septic tank the settling tank is first necessary, constructed in a manner for the promotion of bacterial action which might be termed a form of decomposition. The capacity of settling tank in most cases, from experience, should be of a size to equal the flow of sewage for at least twenty-four hours. (See table of tank sizes according to number of persons.)

The siphon tank provides a storage for the liquefied sewage as it passes in irregular amounts from the settling tank. The purpose of the siphon tank is to dose the disposal system with a given

amount of liquid at each operation, its contents being discharged at a fixed depth. The siphon tank is constructed of shallow depth so as to provide all the possible fall to the disposal system.

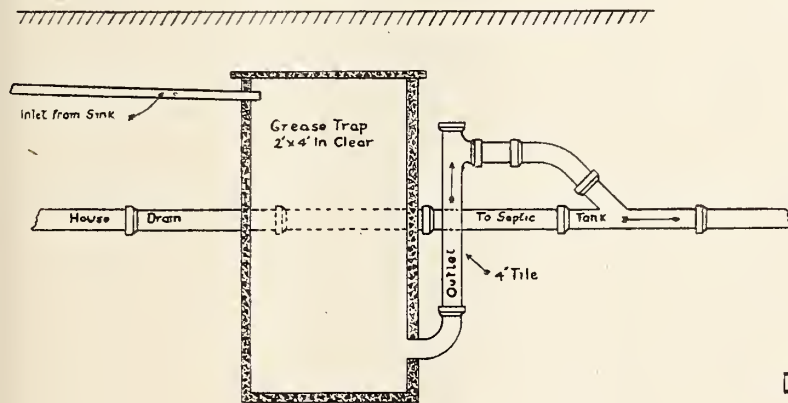
5. The sewage from house or building runs into the first compartment or settling tank. In this tank bacterial action takes place; solid matter broken and liquefaction partial.

When sufficient sewage has collected to raise the level to the top of the overflow pipe in the settling tank, it overflows into the siphon tank. This liquid accumulates in the siphon tank to a certain depth, when it is automatically siphoned out, discharging within a few minutes the depth of liquid in siphon tank into the disposal field. Chemicals are not used in any form.

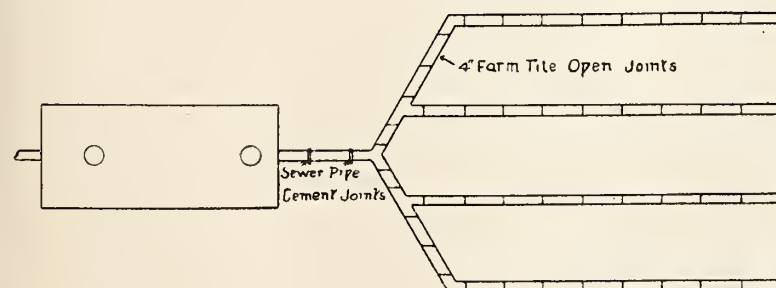
6. In gravel and sandy soils, which are the best soils for the disposal of the tank effluents, there should be allowed at least thirty-five feet of open joint laterals for each person contributing sewage to the tank. As closer grained and more compact soils are employed the length of distribution pipe per person must be increased, even up to as much as eighty or ninety feet as a soil approaches a clay formation. In clay soils a modification of the system has to be employed, as such soil is too compact to permit of natural disposal of the sewage.

The laterals should be spaced at least six feet

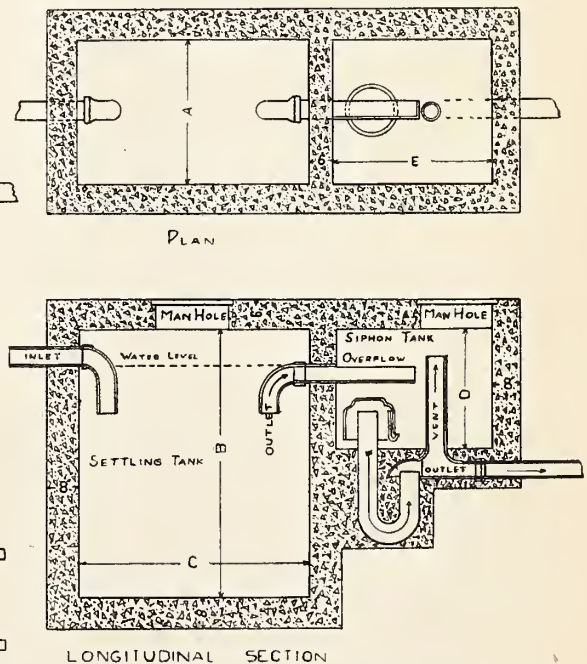
## GREASE TRAP



## DISPOSAL FIELD



## SEPTIC TANK



No Persons	Tank Dimensions				
	A	B	C	D	E
5 - 7	3'0"	5'0"	4'0"	2'6"	3'6"
8 - 11	3'0"	5'0"	4'8"	2'6"	3'6"
12 - 16	3'0"	5'0"	5'6"	2'6"	3'6"
16 - 22	3'0"	5'0"	6'0"	2'6"	4'0"
22 - 30	3'0"	5'0"	8'0"	3'6"	4'6"
30 - 38	3'6"	5'6"	9'0"	2'6"	5'6"
38 - 50	4'0"	6'0"	10'6"	2'6"	6'0"
50 - 70	4'6"	6'6"	12'0"	2'6"	7'6"
70 - 100	5'0"	7'0"	13'6"	2'6"	8'6"

apart, and preferably double that distance so as to allow plenty of soil between the lines for absorption of the wastes from each branch. The tiles in the distribution system should not be over twelve inches below the ground level, as, below that depth, the bacterial changes, which result in the final purification of the effluent, do not take place readily or rapidly.

Where the only soil available for disposal of the sewage is heavy, or clay, it is necessary to make an artificial filter bed. The easiest way to accomplish this result is to dig trenches along the lines where it is planned to run the laterals. The bottom of the trench should be laid at the same general slope as is the line of laterals, and should drain towards some depression in the land, as a ravine, brook or roadside ditch; but it should not directly enter the depression. It is sometimes necessary, where the soil is especially dense, to lay a second line of field tile, with open joints, in the bottom of the trench to carry away the purified effluent after its filtration by passage through the material with which the trench is filled. The space between the two lines of pipe should be filled with gravel, broken rock, cinders or an equally good material for filtration.

7. In some localities where the soil is extremely dense or is of a clayey nature, and where this formation extends to a depth of several feet after which strata of sand and gravel are reached, it is sometimes impracticable to use a filter trench or field tile as a method of final disposal. Excellent results have oftentimes been secured by the use of a dry well or leaching cesspool. This is a simple cesspool, dug to sand and gravel and walled up with loose brick or rock. The septic tank has decomposed and liquified the solid matter, and under these conditions a cesspool will take care of the effluent for an indefinite period.

Any further information will be gladly furnished by applying to the plumbing inspection division of the Colorado State Board of Health.

#### **FOCAL INFECTION IN RELATION TO SYSTEMIC DISEASE, FROM A DENTAL STANDPOINT.\***

**FRANK D. BURNS, D.D.S., DURANGO.**

For the past few years we have heard much of focal infection in relation to systemic disease, especially as regards teeth affected with so-called pyorrhea alveolaris, acute and chronic abscesses, granulomas, etc. Practically every ill to which human flesh is heir has been laid at their door, and in many cases the diagnosis has been verified by the results of extraction or treatment, while in many others results have been nil.

This subject was first called to the attention of the dental profession forty-four years ago by Dr. Rhein of New York City, father of Dr. M. L. Rhein, the noted pathologist of today. He pointed out the dangers to health and life caused by the retention of non-vital teeth in the mouth, and for this he was the subject of considerable ridicule by his friends, who took no stock in this serious matter. The subject seems to have been over-

looked by both medical and dental professions until 1911, when in the London Lancet appeared an article by Dr. William Hunter, pathologist to Charing Cross Hospital, denouncing American dentistry, especially such as was practiced by so-called American dentists abroad. He contended that under crowns, bridges and fillings lurked the most septic conditions, even going so far as to name such measures "septic dentistry". A number of our ablest editorial writers came to the defense of dentistry, maintaining that the dentistry of America was not the dentistry of Europe, and that not all dentistry was deleterious to health and life, yet admitting that as practiced by some both in America and Europe it was such; but at the same time they wanted it understood that sepsis was as keenly and intelligently considered by the better class of dentists as by physicians and surgeons. Nevertheless the subject took root and was seriously observed, when, as a climax, and it was my good fortune to be present, the gauntlet was thrown at the meeting of the Chicago Dental Society in January, 1913, by Dr. Charles H. Mayo, when in closing his paper entitled, "Constitutional Disease Secondary to Local Infections", he used these words: "The next great step in medical progress in the line of preventive medicine should be made by the dentists. The question is, will they do it?" Gentlemen, that challenge, uttered in Chicago by a man of Dr. Mayo's standing, before a group of the most prominent and progressive dentists in the world, has done more for the advancement of the profession scientifically and for the health of humanity in general than the volumes that have been written or spoken before or since.

Not many years ago it was the authorized practice to save every old root and loose "pyorrhea" tooth that could be made comfortable by treatment or splints, the dentist maintaining that the natural teeth for masticatory purposes were far superior to artificial substitutes, never realizing that they were jeopardizing the health and life of their patients. The pendulum had swung to the extreme end of the segment. At about the same time the x-ray came into being. It was very imperfect then, and for a number of years remained in a simple experimental stage, a few pioneer operators becoming martyrs to the cause for humanity's sake; it has since, however, been so perfected and made so safe that it is a valuable adjunct in the armamentarium of every progressive dentist. Furthermore, the dentist of today must not only be able to repair and restore lost masticatory organs, but he must also look after the health and longevity of his patients.

The teeth and their supporting tissues, located as they are at the very orifice of the alimentary canal, being set in a cancellous bony process, overlaid by a delicate mucous membrane, subject to abrasion or erosion in every act of mastication, and the entire buccal cavity being infested with millions of micro-organisms, are more liable to infection than perhaps any other organ or tissue of the body. Clinical records show that an average of three persons out of ten, in adult life, are afflicted with so-called pyorrhea alveolaris in some of its stages. (As

\*Read before the San Juan Medical Society, April 6, 1921.



you all understand, pyorrhea alveolaris is a misnomer, but has come into such general use as to engraft itself upon our nomenclature. It means literally, a flow of pus, while not all "pyorrhea" has reached the stage of pus formation). While there is considerable difference of opinion as to the etiology of this disease, it is pretty generally conceded to be caused by the accumulation of salivary or serumal calculus deposited on the teeth, working its way down under the free margins of the gums, causing inflammation of the soft tissues and absorption of the bony process and supporting periodontal membrane. Pyogenic organisms, such as the streptococcus group, several strains of the staphylococcus variety, diplococci, leptothrices buccales, spirilla and others abound even in normally clean mouths, while in unclean mouths the numbers are greater and the varieties more prolific, so that each abrasion or congested place is a harbor, admitting them and their toxins direct to the blood stream, where they are carried, perhaps to a valve of the heart, to the kidney, to a joint, to a nerve or a muscle or other organ of the body, causing endocarditis, nephritis, arthritis, neuritis, etc.; in fact, any organ or tissue whose immunity is not sufficient may be subject to an attack. I do not believe the great danger lies in the ones that are swallowed, much as we dislike the idea of swallowing pus, because they are largely taken care of by the hydrochloric acid in the gastric juice. I also believe the same thing of the alveolar abscess which is draining through a fistula; as long as it is draining it is practically harmless except for the filthiness of the thing, but when by treatment we close that fistula and do not completely eradicate that focus of infection, it has been my observation as well as many others', that this is the time the systemic trouble begins. This may also be said of the so-called blind abscesses that have never manifested themselves by symptoms, but which the x-ray shows to be numerous, depicting their granulomas as large or small rarefied areas which are sometimes incorrectly called the abscess sacs found on the roots of extracted teeth. Here the pyogenic organism, usually the streptococcus viridans, incubates, and constantly thrown into the system are toxins and occasionally a cluster of micro-organisms in the nature of an infarct which may lodge in an end artery of the brain causing paralysis, or in some other organ, setting up a systemic disturbance. It is my opinion that the granuloma is more frequently the cause of serious trouble than is pyorrhea, because in pyorrhea the serous exudate and pus that form are usually readily ejected and a small amount only passes into the circulation, while in the alveolar granuloma the entire exudate is absorbed into the blood and lymph streams.

As stated before, the x-ray is a valuable adjunct in diagnosis of local conditions in the mouth, but it is not infallible. Clinical experience is necessary to corroborate the evidence gained from the radiograph, as well as much practice in its interpretation. The flouroscope has no place in dental diagnosis. Anatomical and pathological conditions must be well understood; I have seen the inferior dental foramen interpreted as a granuloma in the lower second bicuspid, and the absorbed root

of a lower molar as not showing in a radiograph because the tissues surrounding it were inflamed. Also I have seen the undeveloped apices of erupting permanent teeth interpreted as apical abscesses. The greatest difficulty I find is in making a correct interpretation of the condition sometimes found at the apices of those teeth whose root canals have been well filled to or through the end, months or years before, giving a history of apical abscess before treatment, but the radiograph showing bone formation or abnormal density, called by Dr. A. D. Black, condensing osteitis. This may indicate that the abscess is completely cured, or it is more likely to indicate that the stimulation of treatment caused the osteoclasts to deposit a heavy wall of bone around the granuloma which makes the radiograph difficult of interpretation. The toxins formed are absorbed even through this extra bone and the once local condition now becomes a focus of general infection, and may be the cause of serious systemic disease. I have in mind now one case of arthritis whose onset occurred shortly after treatment of a tooth, and which continued for many months, when upon skiagraphing, the condition showed as a decided condensing osteitis; deciding it nevertheless to be the offender, we extracted it, curetted the socket and found the granuloma still present. In the course of a few months the patient was much improved and gives promise of being completely cured. In another case of a similar condition of the right upper bicuspid, the patient suffering from acute neuritis, I extracted these teeth as well as six remaining upper teeth and in a short time after the patient was practically free from pain. A third case is that of a patient who was suffering from arthritis. We extracted all the devitalized teeth in the mouth and curetted the sockets and the patient died from pneumonia two years later with the arthritis showing no improvement. Another one, and one on the physician: Some six or seven years ago I extracted all the remaining teeth for a patient and inserted dentures. Some three years later, as the patient had not been feeling well, he consulted a well known physician and diagnostician in Denver (happily not in Durango), who made a hasty examination and told him to have his teeth out and he would be all right.

Gentlemen, diagnosis is the foundation for the treatment of disease and we should not take snap judgment on matters of vital importance in the practice of our professions. The pendulum had in this case swung to the opposite end of the segment, but at this time it is seeking a level that is safe to follow. The dental profession is now divided into two camps, one headed by Grieves of Baltimore and Novitsky of San Francisco, who maintain that all non-vital teeth are septic in a short time after treatment and should always be extracted, but do not give clinical evidence in support of their contention, while the other camp is headed by Rhein, Black, Buckley, Best and the late Callahan, who hold the theory that aseptic and properly filled teeth with perfect aseptic root fillings are not a menace to health, and support this theory by thousands of clinical cases extending over a period of many years. Understand, they do not advocate the treatment of teeth al-

ready infected, unless the infection can be removed and the apices hermetically sealed.

In conclusion many cases could be cited from my own experience and by observing dentists, and from the records of dental literature, in which the secondary infection was directly traceable to a primary focus in the jaws and, when the primary focus was removed, rapidly cleared up; yet it must be admitted that not all secondary lesions in the tissues or organs of the body are due to lesions of the jaws, but may come from some other source. Microorganisms vary in their tenacity of life or virility of action and one strain of streptococcus, for example, may change to another strain of streptococcus or even to a diplococcus under varying oxygen tension, if we may depend upon the results shown by Rosenow in his great work on Transmutation of Bacteria. This is possibly what happened in the first mentioned case of arthritis. In lessening the oxygen tension the organism may have been changed from the hemolytic

to the viridans type which is very frequently found associated with rheumatism. Each type seems to have a natural selection for some definite organ or tissue and it may be possible at some near future time to examine the contents of an alveolar abscess and almost definitely ascertain what type or secondary infection to expect.

Finally, gentlemen, the subject of focal infection has brought the dental and medical professions closer together and demonstrated their interdependence one on another more than anything that has heretofore been presented, but it is a sad fact that the education of the average dentist is not sufficient to enable him to grasp the situation in its entirety and from the nature of his work, he has not time nor inclination to continue the study of a subject so deeply scientific; but I assure you that the subject is being so clearly and forcefully presented in all our literature today that "he who runs may read" and if he will not, there is a "hand-writing on the wall" which he will never be able to interpret until his fall.

# MEDICAL COLORADOANA

(Continued from July, 1921.)

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## News Notes

Dr. Roderick J. McDonald, recently an intern at the Denver City and County Hospital, has located in Loveland for general practice.

Dr. A. L. Burnett has moved from Silverton to Durango following the closing of the Miners' Union Hospital at Silverton.

Dr. J. E. Ford of Grand Junction has returned home after an extended trip through the East.

Dr. Hart Goodloe, formerly of Colorado Springs, is now located at 420 Citizens First National Bank Building, Independence, Kan.

Dr. Clough T. Burnett of Denver will leave about September 1 for a four months' visit in Europe, most of which will be spent in Vienna in special study.

Dr. J. F. Wallace of Denver has ordered his Colorado Medicine sent to Camp Kearney, California.

Dr. A. H. Early has announced that Dr. A. J. Chisholm is now associated with him in the practice of proctology.

Dr. Cuthbert Powell of Denver has announced that Dr. W. D. Van Stone is now associated with him in the practice of surgery, gynecology and obstetrics.

Dr. Alex Aberg, formerly of San Luis, is now located at Alamosa.

Dr. J. D. Wright has ordered his Colorado Medicine changed from Pueblo to La Veta.

The marriage of Dr. Lewis I. Miller of Denver to Miss Ethel Bluestone, in New York City, July 1, 1921, has been announced.

Dr. W. W. Reed of Boulder has announced the limitation of his practice to surgery, gynecology and obstetrics.

Dr. Walter Lincoln Palmer, elder son of Dr. and Mrs. Walter A. Palmer of Castle Rock, entered upon his duties as intern at Cook County Hospital, Chicago, July 1, for a rotation service of eighteen months. He graduated from Rush Medical College last March.

The many friends and admirers of Dr. John F. Binnie of Kansas City will be sorry to learn that on July 10 he had "a stroke," resulting in paralysis of the right side and loss of speech. Since then the leg has improved and he moves it quite easily, and his general condition is improving.

Mead, Johnson and Company have been consistent advertisers in Colorado Medicine. Their product is advertised only to physicians, and their packages bear no instructions to the laity. They are offering free a physician's file box and samples of baby foods. Won't you answer their ad in this issue and ask for samples of their ethical product? The file box is worth having.

### Morgan County News.

Dr. C. F. Eakins of Brush was recently called to Iowa on account of illness of his mother.

Dr. Ira J. Clark of Fort Morgan left the 15th instant for a ten days' vacation in the mountains.

Dr. W. E. Turner of Brush spent most of the month of June looking after business interests at Montrose.

Dr. (Capt.) N. D. Wells of Fort Morgan was in Pueblo more than two weeks in June in command of Company M, on duty there after the flood.



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## Editorial Comment

### ENTERTAINMENT AT PUEBLO MEETING.

It is no doubt quite fitting that the scientific work of the annual session of our society should be interspersed with some sort of entertainment; at any rate, the members have come to expect a certain amount of recreation along with the somewhat arduous attention required by a full scientific program. Nevertheless, it was pointed out early to the committee on arrangements at Pueblo that the society would gladly forego any entertainment features, in view of the sad plight of the city occasioned by the flood. While the committee did not take offense at this well-meant suggestion, they have shown by their operations, of which the editor hears directly and indirectly, that they intend to go right along and try to eclipse all past efforts at giving their visitors an enjoyable time. Read the following ebullition from the enthusiastic chairman of the committee and be prepared to be one of those present:

To the Members of the Colorado State Medical Society and Their Families:

Dear Friends—Do not make the terrible mistake of forgetting the Pueblo meeting, October 5th, 6th and 7th. Don't get the idea that because of a flood the Pueblo bunch will fail to provide a fine setting for a gem of a scientific program. We are out to make you take notice that a member of our county society is the president of the American Medical Association, and we take it that is some honor to be thrust upon us in our youth. It has come to our attention that the hard-working Moleen has lined up a splendid scientific program. Bully for Moleen! Many stars for his crown! But that boy would better go some, for we of Pueblo are out to give every one a whale of a time. On the night of Wednesday, October 5th, we will hold an open meeting with addresses to the public by medical men concerning the work of organized medicine in behalf of the public. Thursday morning at 6 a. m. we will have a trap-shoot breakfast. Stop where you are and listen! Genuine Vermont maple syrup, waffles, griddle cakes, Colorado ham and eggs and some fixings in the way of eats that high prices have not permitted medical men to grow fat on recently. You remember those eats we gave you ten years ago—how we increased your waist line and never charged you a cent? Well, we have bad news to impart—we are out to fill you fuller and better, to give you the time of your life and send you home a wreck from too much continued happiness. Did you ever before hear of anything like that being reserved for a doctor? During Thursday the doctors' wives will be invited to regular sessions where household economics and the care, education and rearing of children will be discussed by the visiting and local women. At noon Thursday a cabaret luncheon served by the children will be attended by the doctors

and their families. Now, you'd best lay this paper aside and rest yourself awhile, for we have now come to the harvest supper and you sure are going to need some strength to consider that. Well, now that you are all settled and prepared for all the joys incident and pertaining to a description of the harvest supper I have come to realize that I must be fair and reasonable—you can not be expected to endure the dream and the real thing; that were too much for one poor doctor, so then all's left is to come and have the time of your life, and, believe me, it will be some harvest supper—some little supper.

Cordially yours,

FREDERIC SINGER,

Chairman, Committee on Arrangements.

### THE PROGRESSIVE WORK OF THE AMERICAN SOCIETY FOR THE CONTROL OF CANCER.

The writer is again indebted to the editor of Colorado Medicine for his courteous invitation to place before the readers of the journal a brief outline of the work and plans of the Society.

The year has been marked by steady progress. Organization of the various states has been perfected, the list of Regional Directors and State Chairmen containing the names of representative men in every community.

With excellent organization the Society will carry on a week of intensive Cancer Campaign from October 30th to November 6th of the present year. During this particular week the work will go on in unison through all of the states. It is hoped that all local medical societies may devote at least one meeting to a discussion of the cancer problem; so, as well, with the various dental societies and with organizations of nurses. State and local boards of health will be requested to do all possible in the way of distribution of suitable pamphlets, and the like. The greatest possible number of talks will be given to lay bodies, brief addresses will be made in churches, etc. With this nation-wide cancer week, the maximum of publicity can be suitably attained.

During the year a number of carefully prepared cancer articles have been published in the lay press. Thus, Dr. T. W. Huntington of San Francisco had, during January and February, a series of excellent articles in the San Francisco Chronicle. Dr. W. W. Keen of Philadelphia has prepared an article of like excellence for one of the prominent lay weeklies, an article powerful in the simplicity of its language. (In passing, one may appropriately comment on the interest and vigor which this most distin-



guished surgeon exhibits at the age of eighty-four years!) In addition to his articles in the San Francisco Chronicle, Dr. T. W. Huntington has prepared a trenchant paper for one of our most widely circulated lay monthly magazines.

Through the generous aid of one of America's most benevolent philanthropists a moving picture has been prepared for lay exhibition which will be distributed through the various states before the nation-wide campaign of October 30th. (One is more and more impressed with the educational power of the moving picture theatres.)

For the guidance of state and local Chairmen in the campaign of October 30th, Mr. Frank J. Osborne, the Executive Secretary of the Society in charge of its New York headquarters, has prepared an excellent circular of suggestions, directions as to procedure, etc.

Dr. J. C. Bloodgood of Baltimore, one of the Directors of the Society, has recently set forth a comprehensive plan for a re-study of cancer cases by national authorities. (Jour. A. M. A., July 16, 1921.) As an example of his suggested work Bloodgood briefly puts out a re-study of his own cases of cancer of the tongue. Dividing these cases carefully into early and late groups he adduces a very powerful argument for early recognition and for suitable management of pre-cancerous lesions. Bloodgood heads his letter "Cancer of the Tongue. A Curable Disease".

G. Percival Mills (Brit. Jour. of Surgery, July, 1921), in analyzing 163 cases of the operative removal of the female breast for cancer, finds that of 53 cases which were gland-free at time of operation, 62.9 per cent were alive and free from relapse six years after operation—a powerful argument for early recognition, and even these statistics should be improved.

In the important matter of the use of radium and the x-rays in the management of neoplasms, the Society for the Control of Cancer properly maintains an observant, conservative, judicial attitude. Committees of inquiry are investigating the situation in this most important field. The work is a difficult one and it is realized that a considerable length of time will be required to obtain even provisional estimates as to the real place which these important agents occupy.

Wherever the educational work of the Society is carried on, the results are manifest. Indeed, it is felt that in this educational campaign results are directly in proportion to the amount and character of the work done. The writer cannot refrain from briefly mentioning the most thorough work done by Dr. Charles F. Gardiner, Chairman at Colorado Springs. In this town of some twenty-five thousand inhabitants, Dr. Gardiner and his colleagues made nearly sixty lay talks in October and November of last year. It is stated by physicians and surgeons not connected with Dr. Gardiner's committee that results are definitely apparent. Through the kind and unselfish cooperation of Denver physicians

and surgeons\*, a pretty constant educational campaign has been carried on in this city. Here, too, it is felt that good results are to be seen. If this educational work of the Society is done as it should be done it is thought that one may conservatively say that during the next ten years cancer mortality and suffering should be reduced by at least one-third. When one realizes that the present cancer mortality in the United States is from 85,000 to 90,000 deaths yearly, the importance of suitable work is impressively evident. The Cancer Society may well take many leaves from the book of experience of the National Tuberculosis Society.

To quote from an address made by the writer before the Southern Surgical Association at its annual meeting in December of last year: "In the fullness of time a specific for the prevention or cure of this terrible disease will be found. Even then, however, education will have its place, and in the meantime education holds a first place." In proportion to its population, Colorado is recognized as holding a very enviable place in this matter of cancer education, and it is with confidence that the writer asks every reader of Colorado Medicine to become an active educational agent in the dissemination of knowledge among the laity.

CHARLES A. POWERS, M.D.

President American Society for the Control of Cancer.

#### THE ELUSIVE PROBLEM OF RICKETS.

However clean cut and decisive have been the conquests of scientific medicine in recent times, an appalling array of problems still present themselves for solution. Few among these have been the subject of more intensive study than those involved in the etiology of rickets.

The literature, of the past decade especially, teems with contributions from investigators in many lands; every possible angle in the causation of this ubiquitous disease of infancy has apparently been covered, and every tenable theory exhaustively reviewed without reaching any more definite conclusions than that of the British Research Committee, which finds that "in spite of the most varied and extensive study, we have practically no real knowledge of the nature or causation of this widespread malady, or of the factors which determine its onset."

The report of the committee, composed as it is of men who unquestionably entered upon their work with open minds and unusual facilities for study, must come as a distinct disappointment, alike to those who embraced the dietetic theory in the causation of rickets, and to those who believed the disease chiefly concerned with problems of hygiene.

Nearly three centuries have passed since Glisson established it as a definite clinical entity. Appearing chiefly among children under two years of age afflicted with chronic intestinal dis-

\*Dr. F. W. Kenney, the efficient State Chairman, asks the most active and earnest help throughout the state during the Campaign Week of October 30th of this year.



turbances, it is widely distributed throughout the civilized world. It may affect infants at the breast or may appear among those carefully fed on any other food, such as raw milk mixtures, dry milk and protein milk; it invades the homes of those living under the most meticulous standards of hygiene, but is especially common among the poor of the large cities and in races transplanted from warm to cold latitudes, such as the Negro and the Italian. While its pathology is stressed chiefly in the osseous system, its remote effects may be seen in the soft parts and the vital organs of the thorax may be so impeded in their function that the life of the child is seriously menaced (Park and Howland).

The more recent hypothesis, concerned with the presence or absence in a given diet of the fat-soluble vitamin; the influence of iodine, calcium and phosphorus on body metabolism—these are among the theories now open to experimental investigation which give the most promise of lasting results. J. W. A.

### HOSPITAL STANDARDIZATION.

One of the most prominent problems confronting the medical profession in Colorado is the elevation of our hospitals to the minimum requirements of scientifically conducted institutions. Further interest in the subject is aroused by the meeting of the Mountain Section of the Catholic Hospital Association at Colorado Springs and the recent formation of a Colorado branch of the American Hospital Association.

Both organizations have as their aim, the furtherance of the movement toward hospital standardization.

It seems strange that voices are heard in opposition to this laudable endeavor to raise the status of hospitals above the level of a boarding house. Such hostility and indifference are the outcome of inertia and fear of change. When every corner grocery and every petty retail business have been standardized to the extent of owning a cash register and keeping proper account of their business transactions, it is high time for hospitals to have accurate records of the sick entrusted to their care.

To illustrate the crying need of reform in this particular, the case may be cited of the surgeon who had to make an exploratory operation on a woman previously operated by another doctor in one of the leading hospitals of Denver, because it kept no operative data. Examples like this may be multiplied manifold to prove the necessity of keeping proper records of hospital cases, in the interests of the patient, the hospital and the physician.

Let us for a moment look into our shortcomings. A goodly portion of our profession is notoriously lax in business methods. Diagnoses are made by "hunches" rather than logical marshalling of findings. The doctor who frets at the government for compelling him to keep accurate business books is usually delinquent in keeping proper clinical data of his cases, and therefore does not take kindly to the new hospital regulations. For his own good both from

a scientific as well as a material standpoint, hospital standardization will educate him to develop system and precision.

What is hospital standardization? The word, unfortunately, is poorly chosen and gives but a vague idea of the meaning of the term. In brief, it implies three requisites:

1—Complete and accurate clinical records of every case in the hospital.

2—Properly equipped clinical and x-ray laboratories under competent supervision.

3—Monthly meetings of the staff.

"Clinical data" does not mean merely the nurse's chart (usually the only one found in a hospital); it includes the history, physical examination, operative record, if surgical; progress record, follow-up record and a summary of the case. In addition the hospital should have a room for the preservation and classification and cross indexing of the records in charge of a person suitably trained for this function.

The clinical laboratory is an important adjunct to the hospital. Aside from the routine urine and blood examinations, which every patient receives, all tissues removed at operations are examined both grossly and microscopically. Facilities should be afforded for newer researches in bacteriology and blood chemistry. Instead of the laboratory being relegated to a green interne, it should be manned by trained technicians under the direct guidance of a pathologist.

Regular meetings of the staff are of enormous educational value for the exchange of ideas and presentation of cases and for the considerations of problems affecting hospital management. Deaths occurring in the hospital are analyzed and discussed. Encouragement is lent to more postmortem examinations. Discrepancies between preoperative and postoperative diagnoses are useful themes for consideration. Briefly, then, the difference between a non-standardized and a standardized hospital is that between chaos and order, between apathy to the interests of the patient and whole-souled devotion to his welfare.

The movement to hospital betterment is gaining irresistible force. It is not, as some believe, the sole instigation of the American College of Surgeons. It is the result of a spontaneous striving of the medical profession toward an ideal of system and orderliness, of science and logic, and the bringing together of many minds in the beneficent function of healing the sick.

P. H.

### STATE BOARD OF HEALTH NOTES.

#### Report Tuberculosis Cases.

There is a Colorado law declaring tuberculosis to be an infectious and communicable disease and requiring report of cases by physicians.

This law has been largely ignored; for instance, in 1920 there were two thousand and fifteen deaths from tuberculosis, with only four hundred and ninety-six cases reported.

Below is a sample of the data asked for on cards that have recently been gotten out on

which doctors can report their cases of tuberculosis, using the franking privilege. Within two weeks after these cards were distributed three hundred cases were reported, showing, we think, that the law will be pretty well observed.

- 1. Name of patient.....
- 2. Present address .....
- 3. Previous address .....
- 4. Married.... 5. Single.... 6. Widowed....
- 7. Age..... 8. Sex..... 9. Race.....
- 10. Birthplace—state or country.....
- 11. Date of arrival in Colorado.....
- 12. Place of legal residence.....
- 13. Residence in sanatorium.....
- 14. Occupation, present .....
- 15. Previous .....
- 16. With family?..... 17. Alone.....
- 18. Financial status .....
- 19. Diagnosis .....
- 20. Stage of Disease.....
- 21. Physician's signature .....
- 22. Who advised Colorado?.....

Following are some of the reasons for reporting: The statistics as gathered will—  
Show the trend of the disease, whether increasing or decreasing;  
Indicate means to prevent or cure the disease;  
Show cases originating in Colorado;  
Indicate the indigent cases, and probable cost to the state of Colorado for their support;  
Give some statistics for means to combat the disease;  
Show whether sanatoria are needed or not;  
Promote educational measures for the benefit of the patient himself and those around him.

J. W. MORGAN.

Original Articles

THE FUTURE FOR RESEARCH IN CLIMATOLOGY.

The President's Address Before the Thirty-eighth Annual Meeting of the American Climatological and Clinical Association, Lenox, Mass., June 3, 1921.

CARROLL E. EDSON, A.M., M.D., DENVER.

It is twenty-five years this month since I first had the pleasure of meeting with the American Climatological Association through the kind invitation of that enthusiastic and loyal member, Dr. Samuel A. Fisk.

Each succeeding year has increased my appreciation of my indebtedness to this association. Its meetings have added to my store of knowledge, widened my scientific horizon and kindled my professional zeal by the friction of our amiable discussions. The work of life has been cheered and enriched beyond telling by the friendships here made and strengthened. That after these years I have merited your confidence sufficiently to be chosen your president is a

matter for just pride. For your kindness in thus honoring me I am most grateful.

The end of twenty-five years is a happy time to survey the work and trend of a society. Its accomplishments can be judged by mature experience while they are still clear from fresh associations, not misty, futile reminiscences. The outlook over the future is bright, not yet clouded by a sad "particeps non eris". There are still years for active labor, and a rightful expectation of seeing some of the ripened harvest gathered by younger hands.

The work of the Climatological and Clinical Association in the past has been fundamental in character, broad in scope and, I believe, lasting in its value.

During the past thirty-seven years most of the contributions of permanent scientific value in climatology and balneology in this country have been published in our transactions or by members of this association.

Our papers and discussions first emphasized the benefits of climate in pulmonary tuberculosis and then established by analysis the essential importance of fresh air and medical discipline in its cure. With scientific breadth of view members of this association were prompt to recognize the need for wider, special and more intensive study of this disease. From its inception they were active in the organization and generous in support of the National Tuberculosis Association, both in its scientific and sociological work.

Inasmuch as diseases of the respiratory system were those most apparently helped by change in climate, and those for which patients were most often sent away from home, their discussion occupied a large part of the early programs of our association. They were not the sole or even the chief topics, however, as a study of the transactions shows. In 1893 Dr. R. G. Curtin in his presidential address analyzed the papers read during the first ten years of the association, grouping them as follows: (Table 1.)

Table 1.	No. of
1884-1893.	Papers.
Pulmonary phthisis and diseases of the air passages .....	60
Pneumonia and pleurisy.....	6
Asthma .....	4
Diseases of the heart.....	15
Epidemic diseases .....	18
Mineral springs and baths.....	12
Experiments as to the effects of air pressure on diseases of the heart and lungs	9
Studies of special climates.....	62

This was a broad and catholic range of subjects, which succeeding decades have well maintained. I have grouped the later articles as nearly as possible under the same headings as Dr. Curtin. The newer knowledge of and interest in the endocrine organs, and the special studies on tuberculin and bacterins account for the



larger number of papers grouped under miscellaneous. (Table 2.)

Table 2.

	1894-1903	1904-1913	1914-1918
Pulmonary tuberculosis . . . . .	76	57	31
Pneumonia . . . . .	27	31	20
Disease of the heart . . . . .	37	36	11
Disease of the kidneys . . . . .	1	4	1
Epidemic diseases . . . . .	7	3	7
Mineral springs and baths . . . . .	7	7	2
Studies of special climates . . . . .	36	20	4
Meteorologic physiology . . . . .	20	7	7
Miscellaneous . . . . .	19	66	34

In reviewing these lists and the discussions of our meetings one characteristic stands out. From the first the work of this association had a clinical bearing, a therapeutic interest; the reason for which is clear.

We must never forget that the men who organized this society, who gave it its ideals and established its character belonged to that diminishing number, that corps d'elite of our profession, the great clinicians.

They did not form this society because they were climatologists, but became climatologists because they founded this association.

They desired more scientific, more accurate knowledge of the effect of climate upon the human body. They selected the circulatory and respiratory systems for special study because diseases of these physiological groups were most obviously influenced by climatic surroundings and showed a response to meteorologic conditions which could be measured by the few means then at our command or studied by clinical observation. For they knew the value of clinical study, and the worth of accurate observation.

They recognized their need of more detailed information concerning the climatic conditions present at the various health resorts. Having always in mind the application of such statistics to the benefit of their patrons, they appreciated also the desirableness of definite knowledge of the physical living conditions of the places to which they might send their invalids.

Their clinical wisdom taught them that man was not cured by air or waters alone and that the mental, moral and social nature must be considered. To this end they wisely established the custom of meeting in regular alternation at various health resorts, that they might have the advantage of personal acquaintance with the physical, social and recreational opportunities of these localities; and the character and qualifications of the medical service their patients could command. It was a most useful custom which I believe had much to do with the practical character, the human personal quality of the work, the papers and the discussions of our meetings. We would do well to restore it even at the cost of some longer travel or even occasional dislocation of our vernal meeting time.

Such has been the past work of our associa-

tion: scientific, creative, progressive, practical, humane.

What of the future?

A modern medical society to be progressive and vigorous must have some definite field of study to attract the active interest of its members. There is danger, however, in the present tendency towards many special societies each confining itself to one disease or one set of organs. Such division of interests and limitation of discussion may easily bring about a narrowness of vision and hinder the development of that broad, sound clinical judgment so needed by physicians.

Our association is especially fortunate both in its inheritance of a wide clinical interest and purpose, and in our particular subject for special study.

In climatology we have still a rich and unexhausted field for research, both in pure and applied science of health and disease. For climate is all embracing. It is not a matter to which we can be medically indifferent. It is not like a choice of specifics in lues, or of bacterins, to be used or not as experience or prejudice dictates. We have to consider it. Every patient, whatever his disease, wherever he may be found or sent, is living in a climate of some definite components.

Climatology is not a field to be neglected or one of narrow interest. Indeed, the last six years have seen its boundaries enormously extended. We are no longer confined by latitudes and longitudes. We have added a third dimension to our realm, and now know no limits in space to which our association may not soar.

The paramount importance of aviation in war and its growing usefulness in commerce has necessitated an intensive study of the physiologic effects of high altitude such as we little dreamed of ten years ago. No longer is it the question of a slow change from sea level to five thousand feet or so, within which limits most of our former work was measured; but of the adjustments necessitated by a rapid, almost instantaneous change to fifteen thousand or twenty thousand feet, from summer heat to sub-arctic cold.

The extent of the studies already made in this field is hardly appreciated by the medical profession, though many of the experiences and facts brought out by this school of aviation physiology can be usefully applied to the problems of more humble terrestrial medicine. Not only do they concern the question of low oxygen pressure, of vital capacity, of fatigue-breathing and expiratory reserve force, but the problem of individual limitation of altitude for single flight, or for continued repeated flying. These are not the same.

To such fairly definite studies must be added the extremely interesting tests and researches into the nervous, aural and ocular reactions; the psychic problems of reaction-time and endurance, of close attention under varying states of fatigue, rapid motion, changing position and lessened oxygenation.

Here is a wonderful extension of our own



legitimate field for investigation of the problems of meteorologic physiology in which, so far, comparatively little has been finally determined.

The effects of other factors of moisture, wind, temperature and sunlight are still subjects holding rich rewards for thorough research, by the newer method now available in clinical medicine.

Real advance can come from such observations only when properly checked by laboratory tests under controlled conditions. Never was the time more suited or the call more imperative for the establishment of laboratories for clinical research in meteorologic physiology, which is the foundation for scientific climatology.

In his presidential address in 1905, Dr. Phillips urged such establishment by this society. It is an immeasurable loss that we have not followed his advice during these years of overflowing opulence. But it is never too late to begin. The Climatological and Clinical Association can not do better than to make this sphere of work its own and endeavor by personal, individual and collective action to raise funds and provide means for starting correlated research at two stations in this country. One should be at sea level and the other in a high arid inland region. Such research work could be done best in a laboratory of our own, or if that is not feasible, by aid of our funds in connection with some already established foundation for medical or physiological research.

There is a special reason why the present is a most opportune time for such action on our part. The American Meteorological Society is a veritable young giant in the field. Organized only eighteen months ago it has already an enrollment of close upon one thousand members, most of them trained to exact scientific work, keen and eager for investigation. It is significant that at its first annual meeting last December the president, Prof. Ward, also an honorary member of our association, took "Medical Climatology" for the subject of his address; and that one session was devoted to the physiologic aspects of weather and climate.

We welcome this society and congratulate it on its splendid start. In the friendliest spirit may I call attention to one phase of its proposed work in the field of our common interest. The members of the new society are chiefly meteorologists interested and trained in the physics of the air, the weather and climate; expert in the application of such knowledge to human use. Dr. Phillips once told us that some of our discussions evinced a need of what he called "meteorologic milk for medical babes". In a like way any discussion of meteorologic influences upon disease incidence or variation will go astray if based only upon mortality and weather statistics. It is likely to be labor partly or wholly wasted if undertaken by those not conversant with medical etiology, pathology and epidemiology. It would be a pity to have the work of this new society and our own association come in conflict or to have the papers of

either lack the technical approval of their medical or meteorological statements by competent readers of the other society. To prevent this and to avoid useless duplication of effort, it seems to me we cannot over-estimate the value which will come from close and cordial co-operation in our work in the adjoining and common portion of our respective fields.

The lines of research along which the meteorologist and the physician can most fruitfully work together will be best appreciated if we consider briefly the three needs our profession has in making medical decisions involving climate or weather conditions.

1st. We need more detailed, more accurate knowledge of the normal processes of metabolism and the action of the factors of circulation, respiration, combustion and elimination under various established conditions of altitude, moisture, sunlight, wind. This we may for convenience call climatic physiology. Of it we really know less than we think. There is opportunity for much research and observation in establishing this normal.

2nd. We need to study the physiologic reaction to sudden or marked change in any of the conditions of altitude, moisture, wind or temperature; and to have some measure of the stress put upon normal persons by abrupt calls for physiologic readjustment. This is meteorologic physiology.

It is in this field that the investigations of aviation medicine, so called, have added so much to our knowledge, particularly of the component of altitude. The other factors of temperature, sun, wind and moisture need equal study.

3rd. We need to know the adaptability of diseased mechanisms to function satisfactorily in such differences of climate or to meet successfully changes in weather. This knowledge is the basis for wise and successful application of climatology. Opinions and decisions in such matters are more and more frequently asked of the physician and climatologist.

It is obvious that the meteorologist will be most interested in the first and second of these lines of research. In the laboratory and experimental study of the second division especially—of meteorologic physiology—we must call on him to aid us with his knowledge of methods of exact measurement of the various meteorologic components and his records of changes in these factors.

The American Climatological and Clinical Association and the American Meteorological Society can most effectively and advantageously co-operate in planning, distributing and systematically carrying out such work. A conference between our two societies might aid greatly in providing research facilities or in establishing the necessary laboratories. Such affiliation and exchange of ideas would certainly increase the value and interest of both our programmes. As the Meteorological Society meets in December there would be no conflict in attendance but rather a double opportunity for advancing our common search for knowledge.

In the field of general clinical medicine our



association has a rich future before it in the correlation of experience and the concerted study of those ailments which are chronic and so observable over long periods of time. The problems of change of work or residence by persons with damaged or degenerating organs are intricate and difficult to solve. Of the effect of such change upon pulmonary disease we know a reasonable amount. Of the benefits to be expected in diseases of the heart we know a very little, of the kidneys less and of its action in arteriosclerosis almost nothing. Yet all these latter compose the third group of fundamental problems concerning which we need preciser information. They are problems to which the answers are best sought at present through clinical study.

If every member would keep full and positive records of the important factors in the equation, along definite lines of agreed observation, we would go far to clearing away some of our doubts and not a few of our superstitions. Each year we might devote a session to some one disease or phase of it, as studied and measured by those living respectively in high, low, dry, or moist regions. By comparing such similarly recorded observations we could determine with some measurable degree of accuracy what benefit is really obtained by a patient whom we send away, and wherein the improvement in his physiologic balance is made. The physician in the new climate and the medical advisor at home, by exchange of comparable statistics would each gain insight and prognostic skill.

All this means hard work, conscientiously carried out on carefully planned lines, after mutual selection of the field of study. It is a rich and unclaimed realm for our younger clinicians to appropriate.

I have sketched briefly the experimental work and clinical studies which are the foundations on which we base our judgments as climatologists. With each succeeding year there is coming a greater demand for such opinions and need for expert knowledge of the climatic and living conditions of our health resorts.

Recent years have brought a great increase in wealth and in the number of persons able to travel far in search of more favorable conditions of climate. Some desire simply greater comfort or pleasure upon retiring with riches from prosperous business. Others, in increasing numbers, find heart, arteries or kidneys yielding under the stress of modern life. They must husband their narrowing physiologic margin. Some are obliged to keep still at work, others can go where they will in luxury to enjoy the balance of their life. They seek our counsel in growing numbers, asking what place or climate will least tax and longest support their damaged health. To advise them well we need not alone the physiologic knowledge and the clinical experience which we may increase and exchange in this society, we need also the information which we can obtain only from careful study of climatic charts, the meteorologic and weather statistics, the hygienic, industrial and living conditions,

the recreational opportunities of all our increasing number of health resorts.

A revision of our "Report on Health Resorts and Springs", corrected and extended to include the many new and beneficial places opened in the twenty-five years since it was first prepared, would be a work well worth our consideration. In the compilation of fuller but simpler, more uniform and better systematized tables of climate and weather we could ask the joint labor of our young brothers of the Meteorologic Society. By such a reissue we could provide for our members, and the intelligent public, lay and medical, a reference volume of authoritative value. It would exert a scientific control in questions of climatology and balneology over the commercial and advertising publications of hotels, railroads or municipalities.

I have looked far into the future to see some of these hopes fulfilled. But they are all realizable. They were the ideals of the founders of this association. They are today problems at hand ready for solution as never before. Without labor we shall accomplish nothing, but with vision, enthusiasm and industry we can do all.

If we hold to these traditions in the midst of present opportunities our future transactions will have in increasing measure the value of the past volumes. They will be for air, waters and places the Hippocratic writings of our time to which all will turn for information, with pleasure, confidence and admiration.

After this address was written I received from Dr. Ellsworth Huntington, chairman of the Permanent Committee on Physiological Meteorology of the American Meteorological Society an outline statement of a proposed book to be prepared by them on *The Relation of Air to Health*.

"The purpose of the book is threefold:

"1st. To arouse the interest of the general public by making it realize how much harm is done by improper air, both indoors and out, and how much of this is preventable.

"2nd. To supply physicians, officials, business executors and other thoughtful people with a precise statement of the most favorable conditions of the air for various types of individuals and in various regions.

"3rd. To place before the investigator a summary of our present knowledge of the relation between health and the air."

Here is direct and prompt confirmation of my prediction. Without going into details, even of the bare outline given, it is readily seen from this statement how much such a work will be helped by the medical restraint and collaboration of experienced physicians. To make such a volume a work of lasting value and not merely a scientific Chap Book requires great and concerted labor. Its proposed issuance emphasizes even more strongly than I could the opportunity and the duty of members of the Climatological and Clinical Association to follow up the lines of research suggested and to contribute in the fullest measure from their rich knowledge and experience to the common store of information.



## HERNIA.

BYRON B. BLOTZ, M.D., ROCKY FORD.

During the past five years Dr. Franklin Blotz and I have observed the following routine in the care of our hernia cases. The attempt at standardization has been quite satisfactory.

We make the customary classification of strangulated and non-strangulated herniae as they occur in (a) infants and children under five years of age, and in (b) older children and adults.

We classify strangulated herniae into Class A. Those in which we know the damaged intestine can be replaced with safety; Class B. Those in which our judgment is unable to tell us whether or not the damaged intestine can be replaced with safety; Class C. Those in which we know the damaged intestine can not be replaced with safety.

All cases of non-strangulated hernia in infants and children under five years of age are treated by the application of a home-made truss or a stock elastic truss.

For the home-made truss the mother is requested to secure

- (1) a quantity of white elastic webbing three-fourths to one and one-fourth inches in width,
- (2) some small hard rubber balls (pure rubber),
- (3) a quantity of small rubber tubing (one-sixteenth inch).

The rubber balls are cut into halves and one-half of a ball is stitched to a piece of the elastic webbing (of sufficient length to go around the child's body with allowance for overlapping). A piece of the rubber tubing is now stitched to the webbing near the rubber pad. This serves as a perineal strap. The truss is now complete.

The mother is instructed to make a dozen of these trusses, to change them whenever soiled (holding the hernia in while changing), and to keep the parts dusted with lycopodium. The ends of the elastic webbing and perineal strap are pinned together in the back. Soiled trusses are cleansed and reapplied.

These trusses are kept on for six months, night and day. At the end of six months they are taken off during the night. At the end of nine months they are discontinued.

The home-made truss will almost invariably cure the hernia of infants. In others, where there is no improvement from the constant wearing of a truss for six months, surgical repair is advised.

All cases of non-strangulated hernia and class A of the strangulated are operated according to the method of Bassini with whatever modification may be necessary in the particular case. The cord is seldom transplanted in the strangulated variety in children. The end results do not justify the added surgical risk even though slight.

Class B, strangulated herniae, or those in which we do not know whether the contents will be restored to normal after reduction, are operated according to the following method, which we term the "expedient method".

After the sac has been opened and the constriction at its neck relieved, so that the contents are

reducible, a single strand of No. 2 plain catgut is anchored to the mesentery of the intestine opposite its most damaged area. This strand of catgut is allowed to protrude from the abdominal opening after the hernia has been reduced and serves as a "guy rope" to hold the intestine in the proximity of the abdominal opening so that, in the event of perforation, the general abdominal cavity will not be soiled. It is then anchored to the skin.

A cigarette drain of the size of a lead pencil is left in the abdominal opening. The sac and all layers of the abdominal wall are then closed around it. This drain should extend just within the peritoneum and not far enough to exert pressure on any loop of intestine.

The after-treatment in the "expedient method" is very important. Essentially the patients are cared for as cases of peritonitis:

- (1) Modified Fowler position.
- (2) Murphy drop-tap water or sodium bicarbonate solution at intervals throughout the day.
- (3) Morphine to arrest peristalsis.
- (4) During the third or fourth day the nurse is instructed to increase the rate of flow of the Murphy drop, for a time, sufficient to provoke the rectum to empty itself without causing general peristalsis, after which the drop method is resumed at the usual rate.

(5) If the general condition of the patient is satisfactory at this time, the water by mouth is increased from one-half ounce to one ounce per hour and a little liquid nourishment is given in addition.

(6) The cigarette drain is removed, in non-perforating cases, on the eighth day.

In the event of the development of a fecal fistula the opening is surrounded by squares of gauze not more than two layers in thickness, upon which is spread to the very edges, sterilized vaseline. Excoriation of the surrounding skin is thus prevented. Care must be taken that the vaselined gauze extends to the edges of the opening so that the discharges will run over and not under this protection.

Class C, strangulated herniae or those in which we know the damaged bowel to be beyond natural restoration, we treat by,

- (1) resection with side to side entero-enterostomy or
- (2) the "expedient method" in cases where the condition of the patient or the patient's tissues about the hernia would make resection hazardous.

### Resumé.

In our cases treated by the "expedient method" and developing fecal fistulae, all fistulae healed.

The shortest duration of complete healing from date of perforation was fifteen days, the longest was nine months. The latter was a class C case and did not call a physician until the fourth day. In the meantime he treated the "lump" with liniment and poultices. His condition when he came to operation was serious, with an extensive cellulitis of the lower abdominal wall. He was operated five years ago and at the present time enjoys good health. His bowels are regular and his attention is only called to his former trouble when he rides



horseback. He then detects a soreness in the lower abdomen.

Most perforations occur between the sixth and the eighth day. For this reason we do not remove the safety valve drain before the eighth day.

Patients show remarkable freedom from abdominal symptoms after the healing of the fistula.

One case had a recurrence of hernia. This can be repaired if the patient chooses, under more normal conditions, with very little danger.

It is in the borderline type of cases that the conservative "expedient method" is especially applicable. These are the cases which are apt to be subjected to a more formidable operation than necessary or the converse may be true, the bowel may be returned, the abdomen closed and on the sixth to the eighth day a perforation will usher in a grave peritonitis. This occurred in one of our cases.

Perforations, if they occur in this type of cases, are usually small and heal promptly.

## VITAMINS AND THEIR RELATION TO DEFICIENCY DISEASES.\*

E. B. QUEAL, M.D., BOULDER.

About ten years ago Casimir Funk, a Polish chemist, in a series of experiments of feeding polished rice to pigeons, found that a certain type of nervous disorder developed. The pigeons could not walk, or staggered, but to those that were almost helpless the administration of even minute amounts of the rice polishings produced almost miraculous results, reviving the helpless birds in half an hour and virtually giving them a new lease on life. This substance he called Vitamin on account of its life-giving powers. Some have called these "food accessories," grouping them as antineuritic, antirachitic, or antiscorbutic.

Just what this active principle is we have not been able to determine. From rice polishings a crystalline substance was separated, and a minute amount of this was adequately restorative. So far the purified extracts are found to be composed of Carbon, Hydrogen, Phosphorus, Calcium and Iron; associated in minute amounts. This can only be manufactured by plant cells, none by animals. It cannot be accumulated. We live a hand to mouth existence in relation to this very necessary element. The mother can not furnish it for her child except from the food she has taken.

As we sift it down we find there are apparently three vitamins:

1. Fat soluble vitamin A.
2. Water soluble vitamin B.
3. Water soluble vitamin C.

Vitamins apparently do not yield energy or build tissue. They may and do stimulate appetite. Rats fed purified food, lost appetite but would eat voraciously if fed a few crumbs of vitamins. It seems the vitamins stimulate cell metabolism. They may act upon the ductless

glands, adrenals, thyroid and reproductive glands, but how, we do not know.

Fat soluble vitamin A is soluble in fats, very slightly in water; it is found in cod-liver oil, milk, cream, butter, yolk of eggs, leaves of green plants. This vitamin is not in refined vegetable fats or oils, not in grains nor in sugars. The lack of this element causes rickets. We find this a most essential element in the growth and development of children. But it should not be spoken of as the growth vitamin, for many other things are essential to proper growth—no one main source in ordinary life; good pure milk and cream, and cod-liver oil (known to be of great value for one hundred years), are about the best examples of substances furnishing fat soluble vitamin, the latter being far better than the best cream or egg yolk. There have been some most interesting results in the feeding of cod-liver oil to negro babies to prevent the development of rickets. A tablespoonful of this oil three times a day was given to all babies of from five to fifteen months and no rickets developed.

This vitamin is not so much affected by heat or cooking. Oleomargarin has this element; indeed all yellow animal fats are the best sources. There is none in lard, little in peanut, less in olive oil.

We must keep this in mind, that the cow can not manufacture a particle. It must be in the fodder fed the cow. (Green grass is the best food for the cow.) Milk may stand the test as to cream content and yet prove very deficient in vitamins.

The water soluble vitamin B, the stimulant, or as some call it, the "food accessory" without which Beriberi develops, seems to stimulate cell metabolism and have influence on reproduction. It is found in the outer hull of grains, and the green of grains, in beans especially if sprouted. Here is a point always to be borne in mind—sprouted beans are triple plus in vitamin content, dried beans have none; so too rye, oats, wheat. The Chinese make use of this fact in many of their dishes, as Chop Suey; the beans are sprouted before baking. It is in greens and all green plant tissue, as spinach, salads or fruits; and there are large quantities in yeast. When there is a deficiency in water soluble vitamin B in food, it shows in boils, acne and other skin eruptions. It does not affect skin eruptions due to infections, except in such way as it may aid in increasing resistance.

Strange, how long it takes information to travel; it was discovered in 1912 that water soluble vitamin B was found in large amounts in yeast. It was only in the last year or so that it really began to come into its own. We can not, however, aid the beer drinker in his delusion; there is no vitamin in ale or beer.

Water soluble vitamin C: Experiment goes to show that this vitamin is not needed except in guinea pigs, monkeys and man. Its function is anti-scorbutic. It was away back in 1830 that the English discovered that lemon juice was a preventive of, or a cure for scurvy, when the condition had already developed. (Lemon

\*Read before the Boulder County Medical Society, April 14, 1921.



juice is often called lime by the English, and English sailors were "Lime Juicers".) This valuable vegetable element is present in all citrus fruits and spinach and tomatoes, and its value is not lost by boiling or canning; though heat kills vitamins in general and so does an alkali added to it or cooked with it. This may explain why pellagra is found in the south so much, from excess of soda, yellow biscuits, hog fat and hominy, all foods of low vitamin content.

Have milk from a properly fed cow; drink two glasses of milk a day; eat a good salad; commence the day with a grapefruit or a glass of orange juice; fruits and vegetables in season; some beef with good yellow fat in it, and you need not worry about diet or vitamins.

A vitamin product has been prepared containing all three classes, made from corn, autolyzed yeast and orange juice. The final product is dried in vacuo at a low temperature. The preparation is a grayish white powder, practically odorless, slightly sweet, sparingly soluble in water. It has been kept at room temperature for five months without loss of activity. By chemical analysis it is found to contain calcium oxide, 10 per cent; phosphorus, 5 per cent; nitrogen, and a small amount of iron. The lime and phosphorus are of value, but not the essential part to the vitamins.

This vitamin product is not intended as a substitute for any method of treatment, nor is it meant to be used in infant feeding. Rather is it intended to be used as an aid wherever indicated. The food in all cases must be adequate in carbohydrates, fats and proteids.

## News Notes

Dr. M. B. Stirling has ordered her Colorado Medicine sent to Fort Morgan where she states she will be permanently located.

Dr. Gerald B. Webb returned to Colorado Springs August 31, following his recent attendance at the International Tuberculosis Conference, held in London.

Dr. O. F. Adams of Trinidad, having run into an embankment with his car and incurred considerable physical damage, suffered the additional mortification of having a new tire and rim stolen from his car while it was laid up for repairs.

Dr. D. A. Bronson of Telluride has gone to Chicago for several months' postgraduate study.

Dr. H. C. Dodge of Boulder, who has previously been engaged in the U. S. Public Health Service at that place, has been transferred to Pueblo to serve in the new Veterans' Bureau.

Dr. Elwood B. Lynch of Leadville was married to Miss Lurah M. Wynkoop of that city on August 31.

Beginning with the class of 1924 students of the University of Colorado Medical School will not be granted a medical degree until they have served one year's hospital internship.

The second annual reunion of the 89th Division Medical Officers will be held in Kansas City, Missouri, October 28, 1921.

Dr. Julia T. Hill-Crawford, formerly of Denver, is now located at 678 Irola Street, Los Angeles, California, where she is conducting a retreat for convalescent patients who are ready to leave hospitals and for other patients who may be simply run down or suffering from such debility as requires quiet and rest for its treatment.

Dr. E. L. Morrow of Oak Creek would like to purchase a good second-hand scales with measuring rod attachment for office examinations.

Dr. Helen F. Craig has announced the opening of a clinical laboratory at 820 Metropolitan Building,

for the continuation of her practice in that specialty.

Dr. D. C. Balfour, who has spent the summer in Colorado, returned to Rochester, Minn., September 8.

Dr. McLeod M. George of Denver announces the closing of his office in the Majestic Building and the acceptance of the position of Medical Director and Superintendent of the Bethesda Sanatorium.

Dr. Maurice Levy has announced the opening of offices at 242 Metropolitan Building, Denver.

Dr. H. G. Wetherill of Denver expected to leave on September 14, accompanied by Mrs. Wetherill, on a trip lasting about a year. Two months will be spent in the Berkshire Hills and on November 19 they will sail for Madeira Islands and, by way of the Mediterranean, to Algiers, Tunis, Sicily and by automobile through Italy and on to England.

A nurse now in California who is a graduate of the Ohio Valley General Hospital and has had experience as an anesthetist in the clinic of Dr. G. W. Crile, would like a position as anesthetist or surgeon's assistant in Colorado. Communicate with the editor.

Dr. Charles N. Meader is in New York City where he states that he has been chasing about picking up ideas and data for the new medical school building with interesting results.

The state secretary acknowledges receipt of the program for the 19th annual meeting of the Wyoming State Medical Society to be held in Casper September 6, 7 and 8.

Dr. C. R. McLean, of Ewa, Hawaii, well known in Denver, was a visitor in that city en route east in August.

Dr. W. R. Tipton of Las Vegas, New Mexico, has been making an extended visit in Denver, Mrs. Tipton participating.

Dr. Cuthbert Powell of Denver has returned from a two months' vacation spent in California.

Dr. E. J. A. Rogers of Denver is back from a stay of several months in California.

The Colorado Hospital Association (the Colorado section of the American Hospital Association) was formally organized September 1, 1921, at the Shirley-Savoy Hotel. The following officers were elected:

Dr. R. W. Corwin, president, Pueblo.  
Dr. G. W. Holden, first vice-president, Denver.  
Father William O'Ryan, second vice-president, Denver.

Governor Oliver Shoup, treasurer, Denver and Colorado Springs.

Trustees:  
1 yr. Dr. C. E. Elliott of Victor, Colorado.  
2 yr. Mrs. Oza Cushman of Children's Hospital, Denver.

3 yr. Sister Mary Superior of Glockner Sanatorium, Colorado Springs.

4 yr. Dr. M. I. Marshak of Jewish Consumptives Relief Society, Denver.

5 yr. Dr. H. A. Green of Boulder Sanatorium.

## DEATHS.

Dr. Vivian Russel Pennock of Longmont died August 19, 1921, at the age of fifty-one, of cancer of the stomach, having been bedfast for some weeks previously.

Dr. Pennock was born in Illinois May 8, 1870, but came to Colorado as a child. His medical degree was received from the University of Colorado medical school in 1894. He served in the medical corps in the World War, returning from overseas in March, 1919. At the time of his death he was vice president of the Longmont Hospital and he was at one time a member of the State Board of Health.

## NEW AND NONOFFICIAL REMEDIES.

During July the following articles were accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in new and nonofficial remedies:

The Abbott Laboratories: Argvn.  
Hoffmann LaRoche Chemical Works: Papaverine sulphate tablets-Roche.  
Nonproprietary Articles: Casein.

In addition to the articles enumerated previously, the following articles were accepted during June: Lederle Antitoxin Laboratories: Pollen Antigen-Lederle (Ragweed), Pollen Antigen-Lederle (timothy).

During August the following articles were accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies: Beebe Laboratories, Inc.: Beebe Protein Milk; Beebe Modified Buttermilk.



## Medical Societies

### HUERFANO COUNTY.

#### Resolutions on the Death of Dr. Aubert Durnell.

Since in the death of Dr. Aubert Durnell the medical profession has lost a physician of splendid scientific attainments,

Therefore be it resolved: That the members of the **Huerfano County Medical Society** extend their sympathies to Mrs. Durnell and family in their bereavement;

Be it further resolved: That a copy of these resolutions be sent to members of the family, also to Colorado Medicine, and that they be placed on file in the minutes of the Society.

Dated at Walsenburg, Colorado, this eighteenth day of August, A. D. 1921.

GEO. D. ANDREWS,

IRA B. LAHMER,

A. L. TROUT,

Committee on Resolutions.

## Book Reviews

**The Assessment of Physical Fitness**, by Correlation of Vital Capacity and Certain Measurements of the Body. By Georges Dreyer, C.B.E., M.A., M.D., Fellow of Lincoln College, Professor of Pathology in the University of Oxford; in collaboration with George Fulford Hanson; with a foreword by Charles H. Mayo, M.D., Rochester, Minn. Cloth, pp. 128, with XXIV tables. Price \$3.50 net. New York: Paul B. Hoeber.

This is a book that should command the attention of all physicians who are interested in industrial medicine, actuaries of insurance companies, public health nurses and settlement workers, for the reason that unlike most books on the same lines, the author contends that the occupation of the individual plays a large part in his physical dimensions.

In the past, insurance companies have had hard-and-fast rules as to what the physical dimensions should be to make the applicant acceptable, irrespective of his occupation, and the same remark applies to all those investigators of physical fitness who have followed the matter with more or less interest. Dr. Dreyer divides all workers into three classes and shows the differences in the physical measurements between Class A and Class B—men who have undergone prolonged physical training, or have an occupation which leads to muscular development, and men of the professional and business classes. Class C contains those who lead an extremely sedentary life, which it can readily be understood makes for a greater degree of under-development than would obtain among those of Class A or B. Hence the new note in a book on physical fitness and one that is inclusive of matters which have been overlooked by other authors, and on account of their neglect have given a one-sided account of the matter.

That the theories advanced by Dr. Dreyer are sane cannot fail to be apparent at once to the physician who reads this book, and no doubt will not be long in attracting the attention of the actuaries of our various insurance companies.

**Medical Electricity, Roentgen Rays and Radium**, with a practical chapter on phototherapy. By Sinclair Tousey, M.D., Consulting Surgeon to St. Bartholomew's Clinic, New York City. Third edition, thoroughly revised and greatly enlarged. Octavo of 1,337 pages with 861 practical illustrations, 16 in colors. Philadelphia and London: W. B. Saunders Company, 1921. Cloth, \$10 net.

Encyclopedic in its style, Dr. Tousey's book is a good reference work on electricity and electrotherapy, while it is only fair as regards radium and roentgenology. The style is smooth and understandable—distinctly elementary in explanation, though at times inconsistent. This last fault is traceable to a continued assumption of the reader's technical knowledge of terms, which the author invariably explains later.

The illustrations are fairly good. The outline is comprehensive, though lacking in normal sequence. The book contains valuable information, simply stated for the untrained mind. Most of the material is, to the physician, previously assimilated knowledge, and can be overlooked as such. In its very simplicity of style lies its weak point. It is

well known that "a little knowledge is a dangerous thing"; a layman who had read Tousey's book might be led to think himself better informed than he really was, and consequently might assume undue importance and responsibility. W. W. W.

**A Manual of Pathology.** By Guthrie McConnell, M.D., Associate in Pathology, Western Reserve University, Medical School, Cleveland, Ohio. Fourth edition, thoroughly revised. 12 mo. volume of 611 pages, with 18 illustrations. Philadelphia and London: W. B. Saunders Company, 1920. Cloth, \$4.50 net.

Undoubtedly the mere fact that this book has been reprinted six times shows that there is a demand for this type of a text. The subject matter has been handled in the manner of a compend, and covers a large amount of territory, as special pathology of blood cells, pathogenic bacteriology, parasitology, technic of tissue fixation and staining, besides the usual subjects found in such a book. There are several color plates and many half-tones, the majority of which are only fair.

This book would serve best as a reference work after the subjects had been studied in a more exhaustive text, or as a review to a lecture course.

E. R. M.

**The Surgical Clinics of North America.** (Issued serially, one number every other month.) Volume I, No. 2. By New York Surgeons. 326 pages, with 116 illustrations. Per clinic year (February, 1921, to December, 1921): paper, \$12 net; cloth, \$16 net. Philadelphia and London: W. B. Saunders Company.

New York surgeons are the authors of the April number of the *Surgical Clinics of North America*, only recently published. The volume contains some excellent contributions and others of lesser value.

In particular, attention should be called to the clinic of Charles Heyd of the Post-graduate Hospital. His five cases, none of rare occurrence, are fully discussed in a most interesting manner, while the technique is described so clearly and carefully that no step is the least obscure. If all clinics were presented with the same amount of care and attention to details, the value of this type of publication would be greatly enhanced.

Willy Meyer's discussion of the importance of posture in post-operative treatment is another of the most valuable chapters. He presents some most important aspects of surgical treatment that are often little considered.

John Hartwell has six interesting cases. His one stage operation for cancer of the rectum especially deserves attention.

Among other worth-while contributions may be mentioned a rare case of tuberculous lymphangitis of the leg, discussed by Walton Martin, finally treated by amputation. Albee has his usual group of bone graft cases. An operation for removal of complete cervical rib is clearly demonstrated by Pool. Leo Buerger has a clinical lecture on some complications of urinary lithiasis, while Gibson's lecture on pneumococcus peritonitis takes up a subject rather little known.

It is unfortunate that Erdman, often spoken of as the greatest of New York surgeons, should present his cases with so little care. Practically nothing is said about technique, and very little discussion is given.

G. B. P., Jr.

**Injuries and Diseases of the Bones and Joints: Their Differential Diagnosis by Means of the Roentgen Rays.** By Frederick H. Baetjer, M.D., Associate Professor of Roentgenology, Johns Hopkins University; Roentgenologist, Johns Hopkins Hospital, and Charles A. Waters, M.D., Instructor in Roentgenology, Johns Hopkins University; Assistant Roentgenologist, Johns Hopkins Hospital. Illustrated with 332 roentgenograms and one line drawing. New York: Paul B. Hoeber, 1921. Cloth, \$10 net.

The reviewer considers this a most remarkable book for practical purposes because it covers the subjects treated in all their essentials and is yet terse. If one did not know of the experience and ability of its authors he would realize their qualifications by a short perusal of the book, where these qualifications are plainly stamped. This work will prove a practical and ready text-book for the beginner in roentgenology and is equally valuable to the more experienced x-ray worker for refreshment of knowledge in doubtful cases. Illustrations are numerous and indicative, representing a major feature of the book, and are generally high-class reproductions of good original negatives. The simplicity of style used by the authors can not be too highly commended. The book



is one of a very few on x-ray subjects which are of distinct practical value to the man who is doing every-day roentgenology.

F. B. S.

**Essays on Surgical Subjects.** By Sir Berkeley Moynihan, Leeds, England. Illustrated. Pp. 253. Philadelphia and London. W. B. Saunders & Co. 1921. Cloth, price, \$5.

This volume of collected essays is dedicated to W. J. Mayo, C. H. Mayo and "my friends" at the Mayo Clinic by the author, and contains nine essays that have been published at various times during the past few years. They are: The Murphy Memorial Oration, 1920; the Ritual of a Surgical Operation, 1920; the Diagnosis and Treatment of Chronic Gastric Ulcer, 1919; Intestinal Stasis, 1915; Acute Emergencies of Abdominal Disease, 1911; the Gifts of Surgery to Medicine, 1913; the Surgery of the Chest in Relation to Retained Projectiles, 1920; the Most Gentle Profession, 1921.

The collection of these essays in this form will be a welcome addition to every general medical library, and will also be found valuable for ready reference in the private library of many physicians and surgeons.

The author's rare use of English and his facility and clearness of expression, his freedom from verbosity and vagueness make his "stuff" easy to read and follow, and the fascination of his style and freedom from ambiguity in the presentation of his opinions carry the conviction of soundness that his enormous surgical experience justifies.

The Murphy Memorial Oration will be read again by many who have read it before. It is not alone a graceful and gracious tribute to a great American surgeon and teacher of surgery and surgical pathology, but is a condensation of the surgical history and achievements of the great pioneers of medicine since the days of Hippocrates.

The various essays abound in concise, epigrammatic, meaty messages. For example, on page 4, he says: "There are still among us 'brilliant' operators, from whom I pray to be spared when my hour has come." . . . "Surgery of the 'brilliant' kind is a desecration." "Such art finds its proper scope in tricks at cards," etc., etc.; and on page 80, "More mistakes are made in the diagnosis of gastric ulcer than is the case in any other abdominal disorder," etc.

Although nothing in these essays is absolutely new, in this collection, they may be more readily found for reference, and there is a certain correlation between many of them that adds to their value when bound together.

"The Surgery of the Chest in Relation to Retained Projectiles" is particularly valuable, as it summarizes the various methods for the removal of foreign bodies evolved during the World War and gives an expression of opinion as to their value from one whose large surgical experience and unusual surgical judgment fit him in a peculiar way for this task.

His favorable views upon the method of Petit de la Villéon will, for example, carry great weight with many surgeons, notwithstanding the adverse reports regarding it from many other sources.

"A discovery is rarely, if ever, a sudden achievement, nor is it the work of one man; a long series of observations each in turn received in doubt and discussed in hostility, are familiarized by time and lead at last to the gradual disclosure of the truth."

—Page 22.

H. G. W.

**Diagnosis and Treatment of Brain Injuries With and Without a Fracture of the Skull.** By William Sharpe, M.D., Professor of Neurologic Surgery, New York Polyclinic Medical School and Hospital. Cloth. Price, \$8. Pp. 757, with 232 illustrations. Philadelphia: J. B. Lippincott Company, 1920.\*

This book is the result of the author's experience in a large number of brain injuries both acute and chronic, as well as those of the newborn and children. All cases are worked up in detail and their condition and postoperative notes carefully recorded for a period of a great many months, and even years. Where there was a fatal termination, autopsy findings are recorded.

The author lays great stress upon the fact that in cranial injury, whether acute or chronic, the increase in intracranial pressure is the most important point to bear in mind in treating the case. The presence or absence of a fractured skull is relatively unimportant. He supports his observations by numerous illustrations of extended fractures of the skull demonstrated by x-ray and physical examinations in the absence of an intracra-

nial pressure, in which cases patients made splendid recoveries without operation. Again, cases without a fracture of the skull, but in the presence of an increased intracranial pressure, developed a medullary edema and the inevitable fatal results, if not relieved by a decompression.

The increase of an intracranial pressure is reflected in the eye grounds from one to three hours after an injury producing it. The condition varies from a mere dilatation of the retinal vessels to a blurring of the nasal and temporal fields, general haziness of the disk to its complete obscuration, depending upon the height of the pressure. A still more accurate method is the actual measuring of the pressure by means of the spinal mercury manometer. In the great majority of his cases both the fundal changes as well as the readings of the spinal manometer are recorded. When an intracranial pressure is present which cannot be absorbed by natural means, a decompression is indicated, whether the condition be due to hemorrhage, edema or neoplasm. In the latter, the author claims the decompression will in many cases save the patient from severe headaches, and if not, spare him from an optic atrophy and will prolong his sight for a considerable length of time.

Of 1,922 cases of various degrees of spastic paralysis and mental impairment studied by the author he found in twenty-three percent a definite increase of intracranial pressure demonstrated by ophthalmoscope and spinal puncture. In all these cases, some as late as ten or twelve years after an injury, improvement not only in the spasticity but also in mentality followed the decompression.

The unfavorableness of the prognosis is in direct ratio to the height and the duration of the pressure.

The importance of proper treatment of shock in brain injuries and the danger of "too much meddling" in examining the patient in the emergency room when in shock are adequately emphasized.

This work is a valuable addition to a subject of which we have as yet a very meager knowledge. A general index instead of a case index and a diminution in repetitions would make the book much more attractive.

L. V. T.

#### Old Clothes Needed by Red Cross for Europe.

Eastern and Central Europe, particularly as to its children, is nearer nakedness than it has been at any time since the close of the Napoleonic wars. In a recent review of present European conditions the American Relief Administration announced: "From the standpoint of food, conditions are better; from the standpoint of clothing, they are worse."

All observers agree that the need will reach a climax next winter. Where no clothes have been bought since 1915, except by the sale of household articles and heirlooms, the accumulated stores of years are bound to be exhausted in time, and that limit has now been reached in most families. This is as true in the homes of the formerly well-to-do, who are the new poor, as in the homes of laborers and peasants.

So desperate is the situation babies are born with no provision made for clothing them, and the sick in the hospitals are dependent upon paper bandages. American Red Cross workers say that the number of mothers in Europe who will be unable to provide clothing for their new-born babes will pass the million mark. Hundreds of thousands of children will have no shoes when cold weather comes unless they are provided in advance by American relief organizations.

The American Friends' Service Committee has united with the American Red Cross in a joint summer collection of used and unused garments to meet this situation as far as is possible. The drive will be nation-wide. Those who want to know how they can help should apply to the nearest Red Cross chapter or other Red Cross representative. Only garments which are strong, sensible and serviceable are worth paying freight on across the water. Shoes must be in good condition and tied in pairs. Knitted garments, especially stockings and sweaters, will be badly needed. Baby clothing, new or used; uncut muslin and flannel-ette; strong cloth for suits, yarn, even thread in great quantities, should be accumulated.—American Red Cross.

#### Mid-Western Association of Anesthetists' Organization Meeting, Kansas City, Mo.

The Anesthetists of the Middle West will hold an organization meeting in Kansas City, Mo., October 24-28, in conjunction with the meetings of the Medical Veterans of the World War, Missouri Valley Medical Association, Medical Society of the Southwest and the National Anesthesia Research Society.

\*Apology is here made to the publishers for the long delay in reviewing this excellent book.—Editor.



# MEDICAL COLORADOANA

(Continued from August, 1921.)

## CONTRIBUTIONS OF COLORADO PHYSICIANS AND ARTICLES ON MEDICAL TOPICS PUBLISHED IN THE WESTERN MEDICAL TIMES.

- ABRAHAM, H. E., Trinidad:  
The Etiology, Prophylaxis and Treatment of Puerperal Infection. Vol. 28, 1909, p. 531.
- ADAMS, BEN O., Pueblo:  
Some Passing Practices and Better Methods. Vol. 30, 1911, p. 257.  
A New Instrument to Aid in Bone Plating. Vol. 31, 1912, p. 304.
- ALLEN, J. H., Denver:  
Treatment and Prevention of Acute Coryza. Vol. 25, 1906, p. 522.
- AMBROOK, CHAS., Boulder:  
Suprapubic Lithotomy (Cystotomy). Vol. 3, 1883, p. 15.
- AMESSE, J. W., Denver:  
A Fatal Case of Infantile Scurvy Following a Diet Confined Almost Exclusively to "Grape Nuts." Vol. 31, 1911, p. 222.  
Some Conclusions from 30,000 Primary Vaccinations. Vol. 30, 1911, p. 383.  
Infection With the Fish Tapeworm. Vol. 32, 1913, p. 531.  
Mongol Imbecility: Case Report. Vol. 34, 1914, p. 81.  
Rheumatism from a Pedantic Point of View. Vol. 34, 1915, p. 255.  
The Physical Examination of School Children. Vol. 34, 1915, p. 421.
- ANDERSON, B. P., Colorado Springs:  
Continued and Essential Fevers of Colorado. Vol. 2, 1883, p. 5.
- ANDERSON, M'CALL, Denver:  
Treatment of Diseases of the Stomach. Vol. 5, 1885, p. 38.
- ANDREW, C. F., Longmont:  
The Physician's Use of Proprietary Medicine. Vol. 26, 1906, p. 185.
- ARBOGAST, B. A., Breckenridge:  
Castration the Remedy for Crime. Vol. 15, 1895, p. 55.  
Report of a Case. Vol. 18, 1899, p. 333.
- ARMBRUSTER, C. E., Denver:  
The Respirator. A device for the induction of deep breathing without effort. Its use in deficient respiration, imperfect circulation and pulmonary tuberculosis. Vol. 34, 1914, p. 167.
- ARNEILL, JAS. RAE, Denver:  
Cancer of the Stomach—A Resumé of Cases from the Standpoint of Diagnosis and Medical and Surgical Treatment. Vol. 23, 1904, p. 313.  
Croupous (Lobar) Pneumonia of the Abortive Type. Vol. 23, 1904, p. 584.  
Report of a Case of Lead Poisoning Caused by the Use of Lead Acetate in Therapeutic Doses. Vol. 25, 1905, p. 184.
- Hyperchlorhydria: With Observations on Diet and Gastric Analysis. Vol. 24, 1905, p. 409.
- ATTWOOD, A. D., Denver:  
Treatment of Typhoid Fever. Vol. 25, 1905, p. 225.
- AUERBACH, LEO B., Ward:  
Diagnosis of Acute Gastric Catarrh. Vol. 18, 1898, p. 108.  
Typhoid Fever. Vol. 18, 1898, p. 287.
- AXTELL, E. R., Denver:  
The Use of Bichloride of Mercury in Typhoid Fever. Vol. 10, 1890, p. 44.  
Cholera. Vol. 12, 1893, p. 401, p. 466.  
Obituary. Vol. 19, 1900, p. 369.
- BAKER, A. J., Denver:  
The Sanitary Needs of Denver. Vol. 8, 1888, p. 43.  
Report on the Progress of Medicine. Vol. 8, 1888, p. 84.  
Progress of Medicine. Vol. 8, 1888, p. 113.  
A Case of Stricture of the Esophagus of Fifty Years Standing, Successfully Treated by Electrolysis. Vol. 12, 1893, p. 638.
- BANCROFT, F. J., Denver:  
Obituary. Vol. 23, 1903, p. 24.
- BANE, WM. C., Denver:  
Inflammation of the Middle Ear—With Involvement of the Mastoid—Report of Cases. Vol. 15, 1895, p. 61.  
Acute Inflammation of the Middle Ear. Vol. 17, 1897, p. 206.  
Early Corrective and Educative Treatment of Convergent Strabismus. Vol. 20, 1900, p. 130.  
Prevention and Treatment of Coryza. Vol. 25, 1906, p. 516.  
Tonsillectomy vs. Tonsillotomy. Vol. 26, 1907, p. 272.  
Personal Hygiene in Infancy and Childhood. Vol. 30, 1910, p. 101.  
Abortive Treatment of Acute Mastoiditis, With Report of Cases. Vol. 32, 1912, p. 265.
- BARBOUR, L. P., Rocky Ford:  
Influenza. Vol. 28, 1908, p. 9.  
Sexual Desire in Tuberculosis Patients. Vol. 27, 1908, p. 432.  
Typhoid Fever. Vol. 29, 1909, p. 94.
- BATES, MARY E., Denver:  
A Right "Posterior Illum." Vol. 26, 1906, p. 9.  
Three Cases of Goitre. Vol. 27, 1907, p. 78.  
The Colorado Society for Social Health. Vol. 27, 1908, p. 428.
- BEEBE, JOHN E., Denver:  
Treatment After Operation. Vol. 15, 1895, p. 68.
- BEERS, IDA VALERIA, Denver:  
Treatment of Whooping Cough. Vol. 27, 1907, p. 117.
- BEESON, H. O., Calcite:  
The Use and Abuse of Salt With Food. Vol. 28, 1908, p. 335.

**BEGGS, WM. N., Denver:**

What Consumptives Should Not Come to Colorado. Vol. 28, 1908, p. 147.

Some Problems Before the Medical Profession. Vol. 30, 1910, p. 212.

**BELL, ARTHUR CORDA, Denver:**

A Comprehensive Survey of Diphtheria. Vol. 16, 1896, p. 13.

**BERLIN, WM. C. K., Denver:**

Chronic Constipation. Vol. 26, 1906, p. 81.

Smallpox and Vaccination. Vol. 27, 1907, p. 71.

A Sequela of Scarletina. Vol. 29, 1909, p. 16.

Practical Vaccine Therapy and Immunity. Vol. 30, 1910, p. 97.

A New Departure in the Treatment of Tuberculosis. Vol. 31, 1911, p. 172.

A New Departure in the Treatment of Tuberculosis. Vol. 31, 1912, p. 513.

Bacteraemia. Vol. 32, 1913, p. 569.

The Technic of Intravenous Administration. Vol. 33, 1913, p. 39.

Novel Methods of Administering Morphine by a Habitual. Vol. 34, 1915, p. 430.

Chorea—Treatment Based on Etiology. Vol. 36, 1916, p. 184.

**BESHOAR, M., Trinidad:**

Report of an Interesting Case. Vol. 18, 1898, p. 178.

**BICE, M., Denver:**

Erysipelas. Vol. 8, 1888, p. 33.

**BLACK, HERBERT A., Pueblo:**

Traumatic Appendicitis, With Report of Cases. Vol. 26, 1907, p. 293.

**BLACK, J. A., Pueblo:**

Industrial Hygiene and Diseases of Occupation. Vol. 34, 1914, p. 39.

**BLACK, MELVILLE, Denver:**

Hypertrophy of Luschka's Tonsil, or Adenoid Growths in the Pharyngeal Vault. Vol. 11, 1891, p. 159.

A Successful Cataract Operation Performed Without the Observance of the Usual Rules. Vol. 12, 1892, p. 380.

The Surgical Treatment of Septal Deviations and Hypertropic Rhinitis. Vol. 13, 1893, p. 21.

Ocular Protheses. Vol. 9, 1899, p. 196.

Helps in Refraction of the Subjective Method of Examination. Vol. 20, 1900, p. 5.

Resection of the Superior and Middle Cervical Ganglia of the Sympathetic for Sub-acute Glaucoma. Vol. 21, 1902, p. 528.

Some Thoughts on Syphilis. Vol. 22, 1902, p. 280.

The Relation Between the Mouth and the Eyes and Ear. Vol. 27, 1907, p. 1.

Acute Catarrhal Conjunctivitis. Vol. 28, 1908, p. 117.

**BLAINE, J. E., Denver:**

Puerperal Convulsions. Vol. 4, 1885, p. 295.

Erysipelas. Vol. 6, 1887, p. 331.

**BLAINE, J. M., Denver:**

Uncertain Therapeutics. Vol. 22, 1902, p. 121.

**BOICE, JOHN, Denver:**

A Case of Tetanus. Vol. 7, 1887, p. 601.

Repeated Operation for Malignant Disease. Vol. 13, 1894, p. 407.

Clinical Lecture. Vol. 14, 1894, p. 161.

An Oesophagotomy. Vol. 16, 1897, p. 516.

A Case of Hernia. Vol. 27, 1907, p. 37.

**BONNEY, SHERMAN G., Denver:**

What Consumptives Should Come to Colorado. Vol. 28, 1908, p. 144.

**BOWIE, MORRIS R., Somerset:**

Obituary. Vol. 33, 1913, p. 229.

**BRANDT, EVERETT M., Denver:**

The Treatment of Insomnia. Vol. 25, 1906, p. 469.

The Care and Management of Nervous and Mental Cases. Vol. 26, 1907, p. 283.

**BROSHER, LEWIS B., Denver:**

Haemoglobinuria—Report of Two Cases—Recovery—Remarks on Treatment. Vol. 19, 1899, p. 174.

**BROWN, H. C., Denver:**

The Treatment of Bronchial Asthma. Vol. 26, 1906, p. 84.

An Orbital Injury. Vol. 26, 1907, p. 399.

**BROWN, SHERMAN THOMPSON, Denver:**

Movable Right Kidney as a Cause of Pancreatic Diabetes, with Report of Cases Cured by Nephropexy. Vol. 22, 1903, p. 527.

**BUCHANAN, FRANCES G., Denver:**

A Case of Sphenoidal Sinus Disease. Vol. 26, 1906, p. 1.

Gallstones: An Atypical Case. Vol. 26, 1907, p. 452.

**BUCHTEL, FROST C., Denver:**

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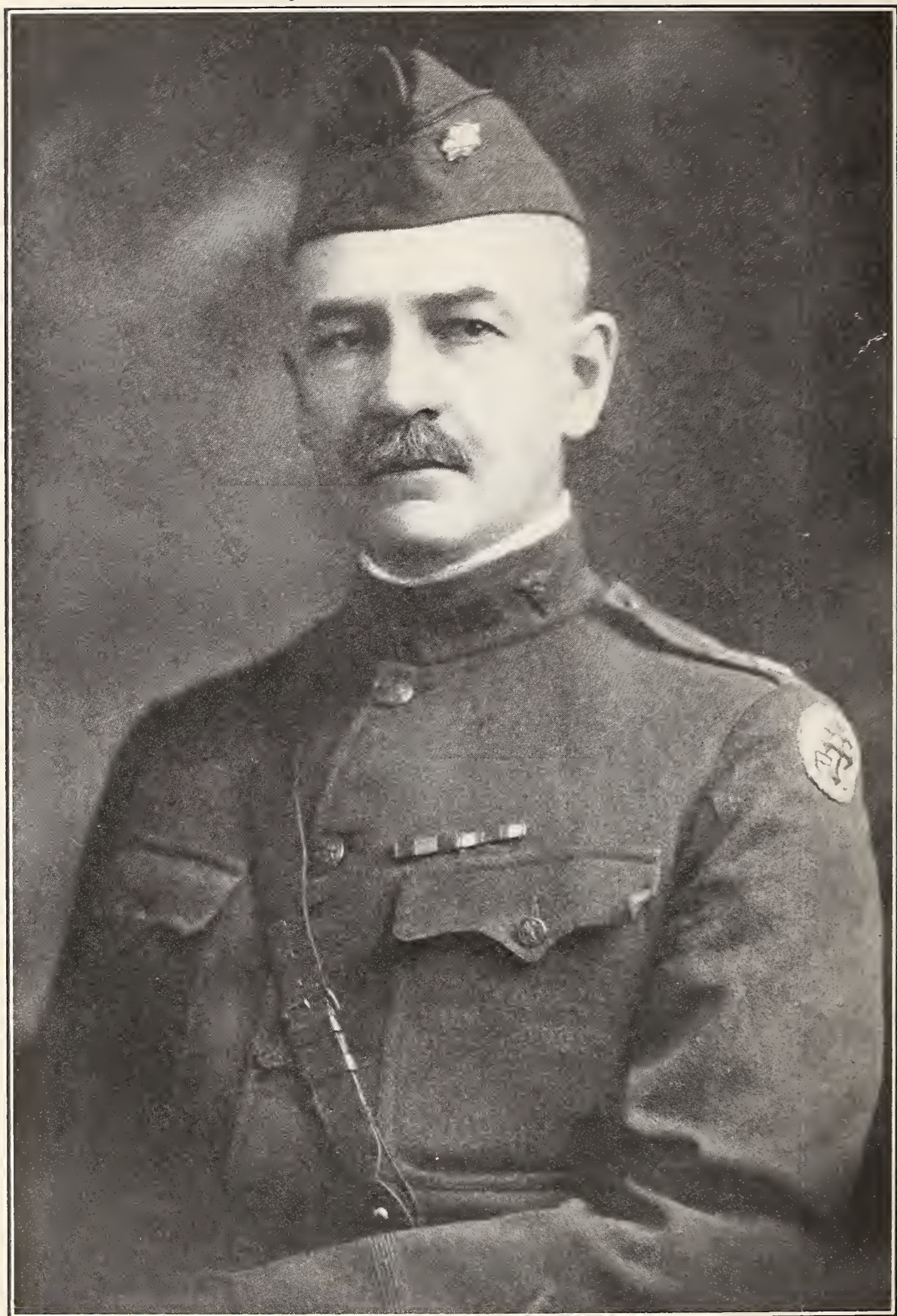
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(To Be Continued.)







**DR. J. CRUM EPLER**  
**President-Elect, Colorado State Medical Society, 1921-1922.**



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## Editorial Comment

### THE PRESIDENT-ELECT.

Dr. J. C. Epler was born in Illinois in 1871. He graduated from the medical department of the University of Tennessee in 1894. After an internship in the Nashville General Hospital he was demonstrator of anatomy and assistant to the chair of surgery in the Vanderbilt University medical school. While so engaged the call to the colors came, in 1898, and Dr. Epler volunteered and saw service in Cuba. He was discharged with the grade of Major. Mrs. Epler followed her husband to Cuba and did Red Cross work on the Island throughout the war. Following his discharge from service, in the fall of 1899, Dr. Epler came direct to Pueblo and since that time has been a prominent surgeon of that city and of the state. He has always been active in the affairs of the state and county medical societies, has been delegate to the American Medical Association and for six years was secretary of the Colorado State Medical Society. During the late war Dr. Epler, as Lieutenant-Colonel in the Medical Corps, went to France in command of Evacuation Hospital No. 28 and returned in the fall of 1919, when he resumed his practice in Pueblo. Dr. Epler organized the Red Cross in Pueblo (first drive) and started it on its way to the efficient local organization it became, he being its first chairman.

His long service to the State Society has been such as to readily warrant any honor it can give him, and the medical profession of Colorado may well feel that its best interests will be guarded and promoted during his tenure of office.

### THE SEMI-CENTENNIAL OF THE COLORADO STATE MEDICAL SOCIETY.

The Colorado State Medical Society passed its fiftieth birthday on the nineteenth day of September, 1921, and in commemoration of this event the House of Delegates of the Society, at the recent meeting at Pueblo, authorized the publication of a Jubilee Volume and appropriated \$750.00 toward the estimated expense.

This Jubilee Volume is intended to be a permanent record of the contributions of the medical profession of Colorado to the science of medicine during the fifty years of its existence to January, 1921. It is proposed to list under the

name of each person all the titles of his or her contributions to medical literature that can be located, with the name of the journal or book in which they appeared, and date of publication. A sufficient number of volumes will be published to distribute complimentary copies to the various medical libraries of this country and many of those in South America and Europe, and to supply all subscribers in Colorado. When the size and character of the volume can be determined the Committee will decide upon the price to be charged and give all members of the profession in Colorado an opportunity of subscribing for as many copies as they may wish.

In order to provide for the expense of preparation and publication beyond the amount appropriated by the State Society the Committee is raising a guarantee fund by pledges among members of the Society, of not less than \$1,750.00, giving a total of \$2,500.00 for the publication. The amount to be received from sales is expected to cover a large share, and perhaps the whole, of the amount pledged, but should there be a deficit it will be charged up pro rata against the pledges for the guarantee fund. The greater amount of this fund was pledged by members at Pueblo and the balance is being now made up, and probably will be fully raised before this article appears in print. Many members are so enthusiastic that they have offered twice the amount requested.

Much of the material for this volume has been collected and an efficient indexing clerk has been engaged to push the work as energetically as possible. Accuracy and completeness are especially desired and each member of this Society is urged to send to Dr. C. D. Spivak, 1620 Court Place, Denver, a list of titles of all publications with journals, books and date of appearance, that they may be checked against the data collected by the Committee, and that omissions and errors may be avoided.

W. A. JAYNE, Chairman.  
HUBERT WORK,  
EDWARD JACKSON,  
Committee.

### PRAISE FOR MEDICAL COLORADOANA.

Inasmuch as the proposed Jubilee Volume of Colorado medical literature references will rest upon the Medical Coloradoana of Dr. Spivak, partial publication of which has taken place piecemeal in Colorado Medicine, it may be interesting to the reader to know how that compila-



tion is regarded outside the state. The following letter is quoted in that connection; Dr. Garrison's authority as a critic of such matters needs no comment here.

#### WAR DEPARTMENT

Office of the Surgeon General  
Army Medical Museum and Library

Washington, D. C., Sept. 24, 1921.

My Dear Doctor Spivak:

Returning from my vacation, I find naturally a great many letters and have been taking these up seriatim. I thank you very much for the interesting "Medical Coloradoana," and do not hesitate to say that to publish the collection you propose, as a definitive contribution to the medical history of your state, would be highly desirable and praiseworthy. Something of the kind has been done for Massachusetts by Samuel A. Greene, for Maryland by Eugene F. Cordell, for New Jersey by Stephen Wickes, for Philadelphia by F. P. Henry, for Cincinnati by Otto Juettner, for the District of Columbia by S. C. Busey and D. S. Lamb, but not any of the publications have bibliographies of work done. When the Medical History Society of Chicago devoted the first numbers of its bulletin to the medical history of Chicago itself, the tendency was highly praised by the historian, Prof. Karl Sudhoff of Leipzig as something much needed in this country and of more positive value and interest to followers of medical history than trite essays on Harvey, Sydenham and other overworked themes. Very little, in fact, has been done for the medical histories of the separate states, which would, of course be building stones for some authentic and reliable history of American medicine in the future; inasmuch as Packard's book only goes down to the year 1800, accurate, documented and reliable as it is. I therefore wish all possible success to your proposition and feel confident that the data, if printed, will be of great use to future medical historians, aside from its local interest and value as part of the historical archives of the state of Colorado.

With best regards, I remain,

Sincerely yours,

F. H. GARRISON.

#### A REVIEW OF THE PUEBLO MEETING.

The first meeting of the House of Delegates, always an important one, was remarkable at the Pueblo session for the number of delegates present and the dispatch with which work was accomplished. Out of a possible forty-eight delegates three were not reported by their county societies (Montrose, Morgan and Teller). Of the remaining forty-five six only were absent. All the officers' reports and nearly all of the committee reports were disposed of at this meeting so that the subsequent ones were not crowded with business and no adjourned meetings were held. While the full proceedings of the House of Delegates will appear in the November issue it may be well to mention a few things that were done at this time. The report of the committee on medical literature was taken up almost entirely with the account of the Medical Coloradoana which Dr. C. D. Spivak undertook to compile some time ago, and the proposal to publish a so-called Jubilee Volume, founded on Dr. Spivak's work, to commemorate the fiftieth anniversary of the Society. This volume will be a complete index of Colorado physicians who have contributed to medical literature within this period of fifty years with complete references to their contributions. An appropriation was passed to guarantee a part of the expense of such a publication, to be supplemented by individual subscriptions. Members will probably hear from the

committee that has this in charge. Another action of the House was to pass a resolution to the effect that an annual banquet should in the future be an official banquet of the Society and that the expense of and preparation for the banquet should not devolve upon the local arrangements committee, but that a special banquet committee should be appointed and the banquet be a subscription affair. The report of the committee on public policy and legislation recited its activities during the past year and the reference committee which reviewed that report recommended that the committee pay especial attention to the proposed legislation in favor of antivaccination and antivivisection which it is anticipated may be introduced at the coming meeting of the state legislature. Comment on the scientific program may be begun with the statement that, to the minds of those present on the last afternoon, a very interesting part of the program occurred at that time. Those who left earlier in the day missed a most enjoyable scientific treat in both papers and discussions. It is unfortunate that the attendance at these meetings can not be extended to the very last paper, for it certainly seems unfair to the reader to be placed at the tag end of a program which is not to be heard in its entirety by all. One suggestion toward remedying this defect which has been made to the editor is that the by-laws be changed so as to make the last meeting of the House of Delegates follow the last general meeting; this would at least hold many of the delegates over for the entire meeting. Correction of this really outstanding fault in our scientific proceedings should be made.

The talk of Dr. J. F. Golden referred mostly to bone surgery by the use of bone transplants, either whole or diced, in both injury and disease. Many x-ray lantern slides were shown as illustrations. Because of its informal and extemporaneous nature, it will not be possible to reproduce it for the readers of Colorado Medicine. The excellent papers of Dr. F. W. Bancroft and Dr. J. C. Masson will, it is hoped, appear in these pages at an appropriate date. The sincere thanks of the society are extended to these honor guests and to Dr. Alexander Craig, Secretary of the American Medical Association, for traveling the long distance to Colorado to give us of their time and experience. It is hoped and believed that their reception at Pueblo was such as to evidence our gratitude.

President Smith, through the prompt and decisive use of his gavel, is responsible for a smoothness and dispatch in the progress of the program which has probably not been heretofore excelled. The time-limit placed upon papers and discussions has a definite purpose and should be rigidly observed.

The total registration of 228 (the Glenwood Springs roster was 136) includes three honor guests and a delegate from the Texas State Medical Association, Dr. G. T. Vinyard, who was warmly welcomed by the audience. Of the 224 members, 80 were from Denver, 42 from Pueblo, 35 from Colorado Springs and the re-



mainder from thirty-five other Colorado towns and one Wyoming town, Cañon City and Boulder vieing for fourth place with seven registrants each.

When it comes to touching upon the entertainment features provided at this extremely successful and enjoyable meeting the editor is at sea. He reached home in such a woozy state of mind that his feelings of endearment for the energetic chairman of the arrangements committee and his corps of efficient helpers has almost changed to one of rancor. The whole jubilee meeting was the greatest admixture of frivolity and serious work that it has been his pleasure and sorrow to participate in. When he now tries to "concentrate" on any subject whatever, he is confronted with myriads of little balloons floating heavenward above throngs of people seated at groaning banquet tables. His head is one of the balloons and as he lights a cigarette it explodes, while the other little balloons change to flying clay pigeons, in whose midst is one object with wings which more and more takes on the shape and physiognomy of Rev. W. F. Singer. The writer's gun bangs loudly, and bits of Singer's anatomy float off to be scattered to the four winds.

### DENVER'S WATER.

Denver's water, at its worst, is better than that of most other cities. During the past summer, however, it has not been altogether free from objectionable odors, and I have been asked, I take it, to state the "reasons why" thereof.

A disagreeable odor or taste in drinking water may be owing to the presence in excess of common salt, mineral sulphates, iron compounds, alkaline carbonates or  $H_2S$  (originating in sewer gas or from the reduction of sulphates by reducing bacteria or by the penetration of tree roots). Such foul odors, however (variously described by Mason as "musty, fishy, cucumber, green-corn, horse-pond, etc.") are commonly due to the growth, death and decay of microorganisms (particularly algae), which, if abundant, may impart also a greenish color to the water. These vegetable microorganisms contain volatile or essential oils, which are discernible microscopically as scattered droplets in the stroma of the plant. In this connection Whipple notes that the odor of oil of peppermint may be still recognized when the oil is diluted with 50,000,000 times as much water, and that when 50,000 of the diatom *Asterionella* per cc. are present, the dilution of its oil is about one part in 2,000,000 parts of water. The number of organisms required in water to impart a distinct odor ranges from 3,000 to 10,000 or more per cubic centimeter. The common blue-green nektonic alga *Anabena* causes a distinct smell like green corn while the plants are yet alive (Mason), changing to a pronounced "pig-pen" odor during the process of their decomposition.

The chemic relations of the subject are explained by Allen Hazen about as follows: When the period of summer stagnation sets in, the bottom water is well charged with dissolved oxy-

gen, which oxidizes the organic deposits at this level, but such oxygen is all used up long before summer is over and done. So now the organic matters (plankton) undergo putrefaction, "producing vile odors and nasty tastes." He says further that reservoirs less than twenty feet deep are kept in circulation by the wind to the bottom all summer, and hence are free from stagnation and putrefaction, unless the under surface is dirty, with rank growths of weeds and microorganisms. High summer temperatures naturally predispose to more rapid and pronounced putrefaction. The presence of abundant nitrates as a pabulum favors the excessive growth of algae.

When the decay of dense vegetation exceeds new growth, the internal use of such water may cause temporary diarrhea, but it remains to be proved that algae-laden water causes any serious increase of morbidity, much less of mortality. For example, I learn from Mrs. Leach, the city registrar of vital statistics, that while last year there were in Denver thirteen deaths from typhoid fever and one death from dysentery, the first eight months of the present year showed only eight deaths from typhoid (none in September) and one death from dysentery.

Through the courtesy of Dr. Ray R. LaCroix, chief chemist of the Denver Municipal Water Works, I herewith append her very interesting account of her recent microscopic investigations of the Denver water supply. The dissolved solids in Denver water (about 250 parts per million) show but little change during the summer months.

### DATA RELATIVE TO THE CAUSE OF TASTES AND ODORS IN DENVER WATER SUPPLY.

Fully 80 per cent of the water used in Denver for domestic purposes is taken directly from impounding reservoirs, which aggregate about 7,000,000 gallons capacity, which is a little more than one-third the amount used by the city for all purposes during a period of one year. During the summer more than thirty varieties of vegetable organisms or plankton have been found in these reservoirs, of which number 66 per cent are organisms which are capable of producing tastes and odors in the tap water. The organisms, or plankton, producing odors and tastes are Diatomaceae, Cyanophyceae and Chlorophyceae, and their odors are termed aromatic, grassy and fishy, respectively.

The plankton consists of simple elementary plants and they have no relation whatever to the bacteria, in which are included the disease-producing germs; indeed, it is found that the plankton is an enemy of the bacteria, and it is usual to find that the bacterial content of the water is much less when the vegetable organisms are most numerous. When alive and in a quiescent state in the still water of the reservoirs, not much odor is apparent; however, when the life-cycle of these organisms is complete and decay begins, they give up an essential oil, the gas from which gives a disagreeable taste and odor to the water, and is found to have the following composition: Oxygen, 2.9%; nitrogen, 12.4%; hydrogen, 82.4%. With a properly designed aerator, the essential oil is broken up into these gases, and in contact with the oxygen of the air the water is thus freed from tastes and odors. The water thus treated should be then filtered through sand filters, thus separating the dead and broken down vegetable organisms from the water, which is made tasteless and odorless and clear and sparkling.

Unfortunately three-fifths of the water supply of Denver is unfiltered and **none is aerated**. Most of the water used by New England towns is thus treated, and without such treatment it would be almost impossible to drink it, as impounded water in that locality is very much worse than in the Central West. The new Catskill water supply for



New York City is aerated and made palatable by this method.

It is perhaps natural to associate tastes and odors in drinking water with pollution, and the layman is very prone to believe this to be a fact. The physician should bear in mind that there is no direct relation between water-borne disease and the tastes and odors of the plankton. Many competent investigators have for many years studied this problem and have failed to establish relationship between enteric disorders and fresh water plankton.

RAY R. LaCROIX, M. D.,  
Chief Chemist, Denver Municipal Water Works.

My assistant, Mrs. A. G. Reeves, has kindly furnished me with the following table, indicating the relative growth of bacteria and of gas development from colon bacilli for several months in the present and the preceding year. The tests are made weekly in the city chemical laboratory, using standard methods as directed by Dr. Wm. C. Mitchell, chief of the city laboratories. The first figures in each column of "Colonies" represent results at 0°C. ("non-pathogenic"); the second figures, at 37°C. ("pathogenic"). The factors in such bacteriologic tests are not altogether simple, and only general and rather reserved conclusions should be drawn therefrom.

REPORT OF WATER FROM CHEMICAL LABORATORY OF DENVER, JULY, AUGUST, SEPTEMBER, 1920.

	Colonies	B. Coli
July 17, 1920.....	21-13	10%
July 24, 1920.....	17-10	5%
August 7, 1920.....	19-12	10%
August 14, 1920.....	8-5	0
August 21, 1920.....	8-4	0
August 28, 1920.....	9-6	0
September 4, 1920.....	8-5	0
September 11, 1920.....	7-4	0
September 18, 1920.....	6-4	0
September 25, 1920.....	6-4	0

REPORT OF WATER FROM CHEMICAL LABORATORY OF DENVER, JULY, AUGUST, SEPTEMBER, 1921.

	Colonies	B. Coli
July 16, 1921.....	15-8	0
July 23, 1921.....	14-7	0
July 30, 1921.....	26-14	10%
August 6, 1921.....	72-34	5%-30%
August 13, 1921.....	68-36	1.5%-10%
August 20, 1921.....	57-27	0
August 27, 1921.....	50-28	0
September 3, 1921.....	15-7	0
September 10, 1921.....	20-10	2%
September 17, 1921.....	94-46	45%
September 24, 1921.....	30-15	0

In getting first-hand material for this paper, I was accorded a courteous interview by Mr. Burton Lowther, chief engineer of the Board of Water Commissioners. He informed me that Lake Cheesman has shown a much greater growth of plankton this year than other years, which he attributed to more intense and steady summer warmth. This lake, the chief source of Denver's water supply, is free from all danger of human intestinal contamination. The growth of algae and other vegetable microorganisms is highly favored by direct sunlight, and unfortunately only about one-fourth of the storage reservoirs are yet covered sufficiently to exclude sunshine. Aeration, along with filtration, is the most scientific and effective method of destroying vegetable odors, but is for Denver still a thing of the future.

All of Denver's drinking water is chlorinated before use—with chlorin gas, calcium hypochlorite or, best of all, chloramine (3 pounds per million gallons), which is considered a more reliable

preventive of typhoid infection than copper salts are. The Denver water is "coppered" every year with cupric sulphate (0.09 part copper per million parts of water), whenever the *Anabena circinnella* shows excessively in the water. It is interesting to note the small proportion of copper mentioned above in comparison with that naturally present in certain common foods. Cocoa, for instance, contains 47 parts metallic copper per million; almonds, 37 parts; and French peas, about 60 parts. Kellernan has shown that the amount of cupric sulphate needed to kill various forms of odor-producing organisms is seldom above one part per million, whereas fish varied considerably in their susceptibility to the toxic action of this copper salt, a safe limit for trout being only 0.14 part per million parts of water, while black bass could endure 2.1 parts per million.

E. C. H.

## STATE BOARD OF HEALTH NOTES.

### The Oath.

Are you your brother's keeper? Yes, and your sister's too. Are you responsible in any way for the health of the community? If Hypocrates had lived in modern times and had seen the work of prevention of disease by "pitiless publicity", by notification of communicable disease where found, he would have added to his oath something like this: "Whatever in connection with my professional practice I see or hear in the life of men which ought not to be spoken abroad, I will not divulge, but when I see a case of communicable disease that is liable to be spread abroad by ignorance or viciousness and is made reportable by the State Board of Health, then I swear by Apollo the physician, and Aesculapius and health and all heal and all the gods and goddesses that according to my ability I will report this case to the local health officer. While I continue to keep this oath unviolated, may it be granted to me to enjoy life and the practice of the art respected by all men in all times. But should I trespass and violate this oath may the reverse be my lot." Hypocrates might have further remarked, "for by neglecting the reporting of disease I find that I have not very much on the slacker or the bootlegger. The one refuses to fight a foreign enemy, while I refuse to enter the fight against disease at home. The other peddles his poison sometimes unaware of its deadly nature, while I allow the poison of infectious disease to spread, knowing full well its terrible effects. The bootlegger has no code of ethics, while I make great pretensions. His code, if he had one, would be 'Get the Money'. Is mine any better?"

Every month when the death certificates come in, there may be found instances where the death from a certain communicable disease is found, but the case has not been reported. We are keeping a list of the doctors who do not report and may some time publish a list of them under the caption "Slacker List". We have a very good precedent for this in the U. S. Government's act



of publishing the list of slackers who refused to fight Germany.

### Diphtheria.

The slaughter of the innocents continues. There were ninety-four deaths from diphtheria in the first six months of 1921. Is it not time to try the new stunt—the Schick test and prophylactic instead of the old methods of closing schools, examining throats, etc.? Here is an article from *The Public Health*, Michigan Department of Health, which is very much to the point:

"It is human nature to lock the barn door after the horse has been stolen.

"It required a great flood to convince the inhabitants of Galveston that they needed a strong sea-wall; it took the Iroquois theatre horror to arouse cities to the need of stringent regulations for fire prevention; and it was not until after the sinking of the Titanic that ocean liners were equipped with sufficient life-boats. Recognized dangers remain unheeded until a spectacular disaster stirs public apathy and spurs us to action.

"Will it be necessary for diphtheria to reach the proportions of an epidemic before sufficient interest and effort can be stimulated to control it? It would be well for local health officers, members of school boards and other town officials to meet together to discuss this situation and map out a definite plan of action.

"It has been shown that the Schick test will reveal whether or not a child may contract diphtheria; that vaccination with toxin-antitoxin induces immunity and furnishes almost as certain protection against diphtheria as does vaccination against smallpox; and that even after a case of diphtheria develops, the early administration of antitoxin almost invariably effects a cure.

"The most dangerous spreaders of the disease are the unsuspected diphtheria carriers, who harbor the germs in their throats and noses. They are generally immune themselves and appear to be in good health. When a case develops among school children and the source of infection cannot be traced, it is wise to culture the throats and noses of all children in the affected school. This procedure frequently results in the discovery of a carrier. Every child carrier should be isolated and placed under treatment to relieve the condition. Most carriers have enlarged tonsils. The removal of the tonsils and adenoids from the throats of those who have them is almost certain to rid a carrier of the germs.

"At a time like the present, every case of sore throat in a child should arouse suspicion of diphtheria. If sore throat is discovered in school, the sick child should be sent home immediately and the parents and health officer notified. Parents are urged to not attempt home treatment but to send for the family physician. Delays are never more dangerous than in cases of diphtheria."

J. W. MORGAN, M.D.,  
Medical Inspector.

## Original Articles

### THE DOCTOR AND THE COMMONWEALTH.

#### Presidential Address Delivered at the Fifty-first Annual Meeting of the Colorado State Medical Society.

H. A. SMITH, M.D., DELTA.

At this, the fifty-first annual meeting of the Colorado State Medical Society, it is well to pause before beginning the discussion of the title of this address, and express something of the sympathy which this Society feels for the people of Pueblo on account of their recent distressing disaster; and something of our admiration for the dauntless spirit shown by them in dealing with its consequences. This spirit has been admirably exemplified by the doctors of Pueblo in proceeding with the preparations for this convention quite as if no calamity had befallen the city in which they live.

Such conduct is in complete accord with the expectations that the public have of the profession, and continues the traditions that have been handed down from the immemorial past—never to shirk a duty nor fail in the complete fulfillment thereof. The medical profession knows, better than any other, that man is born of the dust and is a thing that dies; and nowhere is the trace of the Divine in the scheme of things so surely glimpsed as in the doctor's cheerful, patient, courageous and often unrewarded doing of the things that ought to be done, simply because they ought to be done. It is an enobled dust that can see in such deeds its own reward. Doctors of Pueblo, we salute you!

This leads naturally to the theme under discussion—the doctor's peculiar fitness to take a larger part than he does in the affairs of the commonwealth of which he forms a part. By the natural endowments which lead him to choose the profession of medicine, by his singularly humanizing education and training, by his daily contact with the elemental facts of life, he is qualified as no one else within the nation can be. He is often consulted before viability, and, following the life cycle through to its close on this sphere, interpreting the first cry of the newborn and observing step by step the unfolding and upbuilding of a new life until it reaches its zenith, then with consoling and ever-steadying contact and advice goes down the path with Life to its last pulsation.

The doctor must constantly deal with the actual, the natural, the real in this human life; while the theologian is concerned with things celestial; the lawyer, with the precedents of a dead past; the politician, with the partisanship and prejudices of a dubious present; the journalist, with the expression of opinions pertaining to all of these divisions of time.

It is in no spirit of detraction that these comparisons are made. The magnitude of the debt which mankind owes to theology and law, to statesmanship and journalism is gratefully ac-



knowledge, but the value of these professions to the social organism is not at issue. What is at issue is the fact that the single profession which knows the most about humanity is consulted the least in the direction of human affairs.

This is more particularly true in America where the governments under which men live are, for the most part, not in any appreciable degree governments of doctors, but almost exclusively governments of soldiers, lawyers and professional politicians. Back of these, of course, is the journalist who appears everywhere to be the real power behind the throne. Now there is no disparagement in pointing out that a careful analysis of the equipment in biological knowledge possessed by the representatives of these vocations does not disclose superior qualifications for directing such a biological process as the life of man in the commonwealth. The life of man in the commonwealth or social organism is a biological process. It has of course, its military side, its legal side, its theological and journalistic sides; but it has these only secondarily. It is primarily, fundamentally and wholly, biological; yet the men best trained in biological habits of thought and methods of procedure are almost wholly excluded from direct participation in its direction.

When the doctor's voice is heard in the direction of public affairs, it is heard, as a rule, unofficially. It is heard through the resolutions of a medical society, or the arguments of a legislative lobby. It is heard impatiently and is very frequently regarded as the selfish expression of a body of men who are trying to get something for themselves. It therefore turns out that the man whose whole life is spent in dealing with the biological problems of the individual, is regarded as a presumptuous intruder when he tenders advice regarding the larger biological problems of the state.

Europe has known better how to avail herself of the expert advice which the doctor alone can give. If Europe is less happy than we in spite of this advice, it is to be remembered that her conditions of existence are also more complicated than ours, and that without the most expert advice obtainable, she would have been unhappier still. In state councils of all the most powerful governments existing in Europe, medical men have seats of honor. They have the rank, the title and the authority to which their importance in the commonwealth entitles them.

Clemenceau, the "Tiger of France", is himself a doctor of medicine. The medical men in European parliaments or administrative positions are held in especial esteem because of the superior knowledge which they possess. In America, so seriously do we take our democracy, that it is heresy to suggest that one man may be superior to another in knowledge, or in anything else. The most sacred article in our whole political confession of faith is that all men are created equal. The article next to this in sanctity is that the voice of a majority is the voice of God.

The methods of the physician have been handed down through countless ages. In the beginning, no doubt, every one was his own physician. Then by some adaptation, persons abrogated to themselves the right to call upon the Divine for healing, and this has not yet passed away. Witness the sporadic outbreak of "Divine Healing" in different parts of the world, lasting a few months and then subsiding.

The prehistoric surgeon was a man of skill, as shown by the trephining operations of the South Americans; the cataract operations of the Egyptians; then, later, with his humors and driving away of evil spirits by incantation, mystic charms and concoctions, we find the sorcerer.

The methods of the present century, though, are the methods of the laboratory expert. He must measure and weigh and test; see and feel and handle. The doctor's facts are the facts of a being that is born and lives, feels, thinks and hopes. The occupation of his life is man; his origin, his development, his relationship, his capacities, diseases and disabilities, his possibilities as well as his limitations. He must appraise and collocate his facts to find and apply their bearing upon human welfare and happiness.

The rights and prerogatives of the physician won by centuries of placing the patient's good above every other consideration, the confidences reposed in the profession that will allow an utter stranger to lay before you a life history without reservation, based upon a relationship that has been built upon the highest precepts practiced by the physician since the beginning of modern civilization, are being insidiously undermined by statutes that require various forms of reports, that limit the use of drugs by bureau rulings, or that specifically prescribe, as in this state, a mixture of croton oil, formaldehyde, tartar emetic, ether, water and alcohol for bathing a patient instead of allowing the use of pure alcohol. This limiting the practice of medicine by law, carried to its logical conclusion, may state the amount of ether to use for inducing surgical anesthesia!

Have we, by the so-called venereal statute, improved the status of the citizens of the state of Colorado? Is it better that persons with Neisserian infection avoid the doctor, procure illegitimately what treatment they can, and without advice as to their condition—which is always given by the physician—go their way half-cured, a menace to society in its every bearing? Does it appear to you, gentlemen, that we have gained anything by our hastily passed laws compelling people to "be good"? Is the timid luetic going to have his history put on record to appear against him for the balance of time, if by any means he can get the primary lesion healed and the secondaries are not too marked?

The theory and intent of the law is ideal from the medical point of view, only one small thing was overlooked in its enactment—the patient!

It is time that every state should, in the passage of all such laws, have the advice, consent



and fullest cooperation of the State Medical Association.

There are two outstanding enemies of health and order; they are ignorance and selfishness. The laity as a whole is ignorant of the aims of the medical profession, usually accusing the profession's proposals as selfish, when as a matter of fact, every legal measure supported by the profession has been for the benefit of the public as a whole. In England, the passage of the Medical act that corresponds in a measure to our compensation laws was done only after a long and free discussion with the medical profession, all parties to the agreement—government, profession and patient—being represented.

The highest tribute that can be paid to our government is that in spite of these political methods, it still survives; but it is inconceivable that such methods can be indefinitely continued without disastrous results. We are gratified, of course, by the enactment of the Psychopathic Hospital Bill and the State Medical School Bill, but we are by no means reassured by the reflection that we obtained these beneficial laws, not because their enactment was advised by the medical experts interested only in the weal of the commonwealth—although their enactment was advised by just such experts. Every one of these bills, backed by the active work of the members of this Society, was and is for the welfare of society as a whole—in no instance is the profession directly benefited except that the citizens of the state may receive better care.

Quite as much as the commonwealth needs medical guidance in the enactment of medical laws, it is more in need of such guidance in the education of its citizens.

When it is remembered that mental capacity is inherited, and that people of low mentality have larger families, both actually and relatively than people of high mentality; and that which we consider mental capacity can be changed very little, if any, by education, then we can appreciate the condition that awaits our future as a nation. We have long recognized that the success of democracy depends on the average intelligence of its citizens. Until the individual intelligence is recognized and evaluated in education, we are groping in the dark with an educational system that assumes all to be equally capable of being educated by the same curriculum. Education will only bring to their full development qualities that are already present. When the point is reached at which the mind ceases to assimilate didactic teaching, it is time, even if the pupil has only reached the sixth grade, to begin instruction along any trade that will, at the end of school age, return to the state a self-supporting citizen instead of a parasite.

Nowhere is there a more manifest need of guidance by medical men, trained throughout their lives to regard education as well as all other biological problems from the biological standpoint. We spend more money upon education than any other country in the world; nevertheless, according to the published statement of General Pershing, a large percentage of the

army raised for the world war, could neither read nor write the English language.

It is not alone in absolute illiteracy that the defectiveness of our educational system is apparent. It is even more apparent in the defective power of attention, faulty judgment and illogical reasoning of many of those who can read and write. To convince ourselves of the justice of this stricture, we have only to look about us in any direction and see how slipshod our thinking is in the fields of politics, religion, art, music, literature, social relations and in even our daily business and our estimates of our neighbors.

To blame the teachers for this lamentable condition is not fairly facing the facts. Whatever extravagance there may be in the operation of our school system, it does not take the form of munificent salaries paid to teachers. Many of these teachers are as highly expert as the medical expert himself, but they can only do what the prejudices of a ruling majority permit them to do; and they can only work with the material which we send them, and then not in the manner they know to be the best. Some of this material is not educable beyond a certain moderate limit, and none of it is as highly educable by existing methods as it might be by the application of a more thoroughly scientific method.

It is well within the service that the profession should return to the commonwealth, that their part in the educational system should be an active one. The time has passed when all men can be presumed to be equal mentally. We have arrived at the time in our progress as a nation when we can and must say that children as well as adults are not equal mentally. The history and abilities of the parents which no teacher can possibly know as well as the physician, are factors of importance in studying the school life of the child. No one except the doctor is in a position, or would have the confidence placed in him that allows him to acquire a fund of family history that is of the greatest importance to the welfare, physical as well as mental, of the child during the school age—at least up to and including the high school.

This mass of information must, through the medical profession, be made available to our nation in the training for our future. A child with only enough mentality to assimilate the teaching of the sixth grade, and there are many such, is to be told so. The parents are to be informed first. No step in the training of the child can be successful that does not have the consent and assistance of the parents. The home is and must be the unit through which every advancement shall be carried forward. No agency, no difference how laudable its intention, can even approach the influence of the home when that influence is directed along lines that will return the best results to the individual child. The teaching should be arranged and conducted according to the mental endowment; and the mental ability and suitable training cannot be ascertained by any fixed test or method, but must be the result of continued individual observation.



It is, of course, not proposed that the doctor should add the profession of pedagogy to the practice of medicine or that he should usurp any part of the teacher's legitimate function, but there is an obvious need here of the cooperation of men trained throughout their lives to scientific habits of thought, and permitted in their daily practice to get a deeper insight into human psychology than any other class of men in the world. The doctor's function here is not to teach the pupil but to teach the public; and in order that his teaching might become promptly effective, he should be in a position to speak with authority regarding the physiological and psychological necessity of certain modifications in our educational system.

Democracy needs specialization of the highest type, but more than this, it needs cooperation and coordination of the different phases in the training of the youth to round out a civilization that will be as near the ideal as possible.

In a recent article by Maurice Francis Egan, he says: "It is a crime to write destructively today." Well, it is; but this is not destructive criticism. It is an attempt to make a diagnosis of the malady that afflicts the body politic in order that an appropriate and effective remedy may be applied. The malady is unquestionably lack of qualified leadership. The remedy is more direct and effective participation in public affairs by that profession whose superior endowments and scientific knowledge of human needs and tendencies and limitations so well qualify it to cooperate with other classes of our citizenship in the guidance of public affairs.

### **SOME PROBLEMS CONNECTED WITH TONSILLECTOMY IN THE TUBERCULOUS.\***

**ROBERT LEVY, M.D., DENVER.**

The study of medical problems may be approached from two avenues; the clinical and that by way of the laboratory. Both are essential in the development of scientific truths, and must eventually be so correlated that no glowing inconsistencies creep in to nullify the result. The laboratory may be the pioneer, the pilot to point the way; or it may be the convincing evidence in proving the correctness of clinical observation.

There is no better example of the importance of clinical and laboratory coordination than in the many problems connected with the study of tuberculosis. This was forcibly impressed upon me in attempting to clarify, for practical purposes, some of the problems connected with the "tonsil question" in the tuberculous. As a basis for study, I reviewed my records and interviewed the patients in The National Jewish Hospital For Consumptives and the Jewish Consumptives' Relief Society Sanatorium, both of Denver, with the result that in something over four hundred patients, thirty-nine were found to have had a tonsil operation. Of these, eighteen had been operated before tuberculosis had been recog-

nized; twenty-one had been operated after tuberculosis had been recognized. The question uppermost in my mind was to determine what, if any, was the effect upon the tuberculous patient, for good or evil, of the tonsil operation. Of the thirty-nine cases in which some form of tonsil operation had been performed, it was stated that seven showed ill effects. These effects were of sufficient importance to constitute a warning to the indiscriminate tonsil operation in the tuberculous. It was found that in these all but one showed symptoms of tuberculosis prior to the operation, although not always so interpreted. In four, local tuberculosis developed where previously it had not been recognized. In two, general symptoms were increased. In one, whose symptoms were not interpreted as tuberculosis before operation, the local symptoms were increased, and eventually recognized as tuberculous.

When active local tuberculosis of the pharynx or larynx follows operative interference, or even when local or general symptoms are increased thereby, one naturally asks the question, what, if any, may be the effect of trauma in the development of tuberculosis, or in the increase of its manifestations?

In this connection it is of historical interest to note that in 1886 Wyssokowoitsch<sup>1</sup> produced septic endocarditis by traumatism of the heart valves followed by injections of a culture of streptococci into the blood current. This, of course, proves nothing with regard to tuberculosis and injury, were it not for the experiments cited by Pels Leusden<sup>2</sup> on kidney tuberculosis as a result of investigations recorded by Seeliger, and frequently quoted by Orth, in which, "crushing of a kidney in rabbits, followed by the intravenous injection of tubercle bacilli, resulted in the preferred localization of the tuberculosis in the injured kidney to the exclusion of the rest of the body". These experiments, however, were not sufficient to be conclusive, and the work has never been corroborated on a large series of animals.

Likewise Block<sup>3</sup> in 1907 recorded experiments in which he believed that he noted a hastening of the local gland tuberculosis following the subcutaneous injection of tubercle bacilli, provided the glands were crushed shortly before or following the infection. On critical analysis, however, these experiments, based on the microscopic examination of gland material and resulting from the injection of specimens containing irregular amounts of tubercle bacilli, could not be corroborated by Eschon, 1913, or subsequently by Corper<sup>4</sup> in 1919, who states that crushing and the subcutaneous injection of chemical irritants "just prior to the subcutaneous injection of virulent human tubercle bacilli in various sized doses, had no appreciable influence upon the progress of the infection as compared with that obtained in control guinea pigs".

It would appear, therefore, extremely doubtful whether trauma plays much, if any, rôle in tuberculous infection, consequently one views with some doubt the statements of clinical observers whether supporting or refuting this view.

\*Read before The Pacific Coast Ophthalmological and Otolaryngological Society at Portland, Ore., July 29, 1920.



Nevertheless, well studied clinical observations can not be ignored. Scott<sup>5</sup>, in an article on tuberculosis of the tongue, concludes that trauma is an etiological factor in an "area of impaired resistance". Lermoyez<sup>6</sup> relates the case of a woman who developed pulmonary tuberculosis following an adenoid operation, no chest disease having been discovered at the time of operation. Walsham, in reporting this case believes that the adenoids were tuberculous from the first, and that the operation merely let bacilli into the general circulation. In this, as in two other cases, no mention is made of local tuberculous lesions.

As bearing upon the question of trauma, Walsham refers to the case of Breus<sup>7</sup> in which pharyngeal ulcerations following the accidental swallowing of caustic potash became tuberculous in an individual suffering from pulmonary tuberculosis. Cases of local tuberculosis with ulceration and adenopathy have followed ritual circumcision (Reuben)<sup>8</sup>, in which the operator was known to have had an open tuberculous lesion. Local injury is believed by Gammons<sup>9</sup> to be an important factor in determining localization of tubercle bacilli. He relates instances of tuberculosis of the knee, of the ilium and of the ankle in tuberculous individuals who had met with local injury. Oliver<sup>10</sup> relates a case of latent tuberculosis aroused into activity by an accident, also in a tuberculous individual, the injury localizing the tuberculous manifestations. A shell wound of the chest reported by Meyer<sup>11</sup> is assumed to have aroused to virulence some latent tuberculous focus. A case presumed to be primary pleuro-tuberculosis followed a contusion of the chest. (Lemierre and Lantuejoul)<sup>12</sup>.

Doubt is thrown upon this hypothesis by the paper of Pehu and Daguet<sup>13</sup>, in which only five cases of tuberculosis developed in a total of one hundred and forty-six war wounds of the lungs or the pleura, and of these five only two developed the tuberculous process on the same side as the injury.

At the 18th Session of the Research Society of the American Red Cross in France, held November 22-23, 1918, the general consensus of opinion was that chest wounds or gas do not predispose to tuberculosis, but that they may light up an old tuberculous process.

Some light upon this problem may be thrown by a study of the manner in which tubercle bacilli find entrance into the body. Kolingsfeld<sup>14</sup> has shown that tubercle bacilli may pass through the intact and uninjured skin. Cornet produced glandular tuberculosis by rubbing and inoculation of teeth pulp with tubercle bacilli. Local lesions have been produced by rubbing, by injection and by mere contact of tubercle bacilli with the pharynx and the tonsils. The relative importance of local inoculation on the hematogenous origin of tuberculosis is still a mooted question.

Clinically one rarely, if ever, sees primary tuberculosis of the throat. In cases in which local tuberculous lesions are seen it must be generally assumed that these lesions are secondary to obvious foci elsewhere, and are probably of hema-

togenous origin. On the other hand, there can be no doubt, as Billings states, that "a majority of civilized mankind, who are city dwellers, carry a latent tuberculous focus". A good example of this is found in those cases of cervical adenitis in children in which histological tuberculosis of the tonsils has been demonstrated. These tonsils cannot be distinguished from the hypertrophied, or, in fact, from the innocent tonsil. Tubercles have been found in tonsils of the "protruding type as well as in those buried in the fauces". Suspicion, however, may be aroused and it may even be assumed, that the tonsil is tuberculous in children below par whose cervical glands at the angle of the jaw show some pathology. (Mitchell<sup>15</sup> and Hays<sup>16</sup>). It has been definitely shown that the number of cases of histological tuberculosis of the tonsils is much greater in patients suffering from pulmonary tuberculosis than in the non-tuberculous. (Metcalf<sup>17</sup>, Lockard<sup>18</sup>).

It is well recognized that two forms of tonsillar tuberculosis exist: that which may be called manifest, clinical, tonsillar tuberculosis in which distinct tuberculous ulceration appears, and the other, the latent histologic form. Indications for operation must depend upon our recognition not only of these two forms of local tuberculosis, but also upon our interpretation of symptoms for which the tonsils may be responsible.

Beneficial general effects from tonsillectomy in the tuberculous have been reported by Dr. Dennis<sup>19</sup> of Colorado Springs. Others have advised operation with a view to improving local or general symptoms, assuming that the removal of foci of infection, other than tuberculous, might be of benefit.

No detailed study, so far as I know, has been made to prove this belief. Nevertheless, the impression is prevalent that tonsillectomy in suitable cases is of value. Clinical investigation and the study of a large series of cases carefully recorded will be necessary before this can be accepted as final. On the other hand, it has been suggested that many patients have suffered decidedly ill effects following operations. This has also been only impression, and therefore must be accepted with reserve.

In a number of the patients reported above, local or general symptoms, or both, were said to have been increased by operation, but the patients' observation was open to question, and therefore, not to be accepted as reliable for scientific conclusion. In five of the cases, at least, the ill effects were definite and demonstrable. In three of them tuberculosis had already been recognized, while in two, examination for tuberculosis had been negative. Each of these cases presented points of individual interest, but for our purpose the report of two will be sufficient.

Case I. A young man, twenty-five years of age, had been in the army seven or eight months, during which time pulmonary tuberculosis had been suspected, though not demonstrated. About eight weeks prior to examination he had had a tonsil operation because of cough. Immediately after operation soreness



developed and continued. There had been great loss of blood after operation, and his symptoms persisted. An x-ray examination of his lungs was made which was positive for tuberculosis. Examination of the throat showed large tonsil stumps. Both fossae and anterior and posterior pillars were infiltrated with grayish deposits. There were superficial ulcerations and pale edema of the uvula and surrounding soft palate. Laryngoscopic examination showed edematous and swollen epiglottis dotted with grayish deposits and beginning ulceration. The arytenoids and ventricular bands showed pale infiltration. The picture was that of well advanced laryngeal and pharyngeal tuberculosis.

**Case II.** A young man, twenty-seven years of age, presented himself complaining of pain and difficulty in swallowing. Four months previously he had had his tonsils removed because of recurring tonsillitis. Close questioning revealed the fact that the throat had been sore continuously for two or three weeks before operation. Since then the soreness had continued. There had been pain on swallowing, and hoarseness had developed shortly thereafter. Examination of the lungs for tuberculosis was said to have been negative. The sore throat had been accompanied by fever and general malaise, which also continued after operation. There had been some loss of weight which after operation progressed rapidly. Examination showed marked pallor and swelling of both anterior and posterior pillars, with pin point grayish deposits scattered throughout, and a mouse nibbled appearance presenting at the junction of the right posterior pillar and uvula. The epiglottis was greatly tumefied and pale. The right arytenoid was pale, pyriform and covered with superficial ulcerations; a typical picture of pharyngeal and laryngeal tuberculosis.

In view of such observations one cannot proceed too cautiously, and still they should not deter one from operating in cases properly selected and studied.

A general survey of all tonsillectomized tuberculous patients might show but few deleterious effects directly attributable to the operation. This might hold even more true in a survey of cases in which the operation had been performed prior to the recognition of tuberculosis.

In cases of so-called latent tuberculosis, those in children with cervical adenitis, operation is definitely indicated. We need not fear "development of latent tuberculosis in lungs" as suggested by Mackenzie<sup>20</sup>, but should rather lean to the belief that we have removed an important port of entry for the tubercle bacilli; and if adjacent glandular involvement is also corrected by operation, many may be saved later pulmonary disease.

On the other hand the cases here related offer a separate problem which will need more clinical as well as laboratory study before the final conclusion may be reached. But, in view of this uncertainty, should we not be guided, at least for the present, by our experience up

to date? It is my firm conviction that many cases of pretuberculous individuals, or those of manifest early or somewhat later stages, may be materially benefited by tonsillectomy.

The reservation is here emphatically made that advanced and rapidly progressing cases should be set aside as improper for operation. Freudenthal quoted by Richards<sup>21</sup> in 1909, warned against operation in these cases, and at a recent meeting, I am told, read a paper emphasizing this warning.

It is urged that great care be exercised in the study of all cases prior to operation. Is this always done?

What were the indications for operation in the above series of cases? The patients stated that the operations were done for one or more of the following reasons: soreness, burning sensation, dysphagia, cough, paraesthesia, enlarged tonsils, nasal symptoms, heart disease, fever, joint pains, rheumatism, swollen glands, tuberculosis of tonsil suspected, because advised by doctor or school teacher.

From this it would appear that in many instances at least no very satisfactory reason for operation was elicited. It may be further stated that these cases belong to a group which it is dangerous to treat lightly in spite of conflicting evidence as to the effect of trauma, both clinical and experimental.

Can we then outline definite indications for operations? In the one group of cases, found principally in children, we are safer in proceeding rather radically than in remaining too conservative. To believe as Swain<sup>22</sup> stated in 1911, that in removing tonsils and lymph nodes we "will see more bone tuberculosis in children in the next ten or fifteen years" is a dictum that time already has condemned. I would rather agree with Casselbery, who, during a discussion of this question at the meeting of the American Laryngological Association, in 1909, stated that he lived only to regret that he had not removed more rather than less. What a clear vision!

As stated by Richardson<sup>23</sup> in a most conservative article, operation may be required or suggested "to prevent and mitigate certain constitutional symptoms through which the tonsils are the supposed portals of entry, such as rheumatism, gout, tuberculosis, pleurisy, etc." Richards<sup>24</sup> advises the removal of tonsils in all cases of cervical adenitis, and in all children whose parents give a history of having had cervical adenitis. Many others make a definite statement that enlarged cervical glands, especially when involving the one known as the tonsil gland, situated at the angle of the jaw, call for extirpation of the tonsils.

The group of cases to which special attention is here called occurs principally in adults and may generally be considered as being tuberculous. Frequently the signs are indefinite, and for this reason they constitute the greater problem.

The symptoms for which operation may be considered are local and general: cough, repeated sore throat, sense of discomfort and lo-



cal pain are all legitimate indications for operation. They cannot, however, be accepted at their face value, but should be studied in connection with certain general symptoms, such as fever, malaise, loss of weight, etc. That these general symptoms may also constitute in themselves reasons for operation is well recognized, but an attempt should be made to eliminate all other sources from which they may arise before the tonsil should be considered as the sole or even the most important factor.

In conclusion I should like to emphasize this thought, that there is just as much danger in too conservative a position as there is in too radical a stand.

Pitfalls here await the unwary, and until more definite data are presented, no phase of the so-called tonsil question calls for greater individual care in the selection of cases for operation.

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#### NEW AND NONOFFICIAL REMEDIES.

During September the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

The Abbott Laboratories: Procaine-Adrenalin Hypodermic Tablets No. 2.

Dry Milk Co.: Protolac.

Hynson, Westcott and Dunning: Tablets of Benzyl Succinate-H. W. and D.

Intra Products Co.: Ampules Ven Sterile Solution Mercury Oxycyanide, 0.008 Gm.; Ampules Ven Sterile Solution Mercury Oxycyanide 0.016 Gm.

Lederle Antitoxin Laboratories: Acne Combined Vaccine.

Mead Johnson and Co.: Casec.

N. Y. Intravenous Laboratory: Loeser's Intravenous Solution of Mercury Oxycyanide.

Seydel Mfg. Co.: Benzyl Succinate-Seydel.

Nonproprietary Articles: Benzyl Succinate; Calcium Caseinate.

## TUBERCULOSIS OF THE GUMS; REPORT OF A CASE AND A REVIEW OF THE LITERATURE\*

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The patient was a married man thirty-six years old, five feet and eleven inches in height, and weighed one hundred and twenty-six pounds. His family consisted of a wife and three little children who were all well. His mother died of tuberculosis. His own history was negative as to syphilis or other diseases. His sickness began following an attack of influenza in 1918, but he had worked on his own farm in South Carolina till September, 1920. He came to Denver the following November.

He had the appearance of a far advanced case of pulmonary tuberculosis and had an extensive tubercular involvement of the larynx and epiglottis. The lesion which was causing him the most distress was an ulcerated condition of his gums, which he said had been present for four months. He stated that the doctors in South Carolina did not seem to know the cause of the condition.

The largest area was along the lower jaw on the right side and extended anteriorly to nearly the center of the jaw. He had gone to a dentist who had pulled the two or three back teeth on that side, hoping that it would help clear up the trouble, thinking it might be due to pyorrhea alveolaris. The anterior teeth on that side were loose and the tissues ulcerated away from the upper parts of the teeth. He said that had been true of the teeth which had been pulled. The mouth was a dirty, ill-kept mouth, yet the ulcerations along the gums at once struck me as looking similar to pictures I had seen in Phillips' text book on Diseases of the Ear, Nose and Throat. The picture was of tuberculosis of the gums from tuberculosis of the mouth.

The ulcerated area was extremely painful to the touch, so interfering with his eating to some extent. The ulceration was rather superficial with irregular edges covered with a grayish, dirty looking exudate with red granulations showing through. There was no induration underneath or around the edges, which would be the case if due to a malignant disease. The ulceration had the appearance on the surface of a mixed infection. In Carmody's paper on "Oral Tuberculosis", he speaks of the fact that all reported cases show a mixed infection, which may mean that the soil is prepared by previous infection. This case certainly looked of that character.

The Wassermann reaction was negative. Scrapings of the area contained tubercle bacilli and were entirely negative for any organisms found in Vincent's angina. There was an adenitis of the submaxillary glands which may have been partly due to his general tubercular condition.

A section was made of the area by Dr. E. R. Mugrage, who pronounced the condition tubercular.

Tuberculosis of the oral cavity is an infrequent disease which is mostly secondary. The primary disease is rare, but all through literature there

\*Read before the Medical Society of the City and County of Denver, March 15, 1921.



are here and there primary cases reported. Many of these cases are clinically primary and not proved cases. I notice in my reading many refer to a case by W. Fairlie Clarke in 1876 and another by Schlieferowitsch in 1887, in which autopsies confirmed the diagnosis of the disease being primary. Nedophil reported four primary cases in Billroth's clinic in Vienna in 1876. Gleitsman reported two primary cases in 1888 and in 1898 with cure. Zintsmaster reported a primary case in 1903 in a man eighty years old which resembled carcinoma with no other focus of tuberculosis found.

Dr. Lockard, in his book on Tuberculosis of the Nose and Throat, says lupus occurs about puberty while tuberculosis occurs between twenty and fifty years of age, the majority of cases being in men.

To give you an idea of the infrequency of oral tuberculosis, the volume on Tuberculosis in Nothnagel's Encyclopedia said Heller gave only four or five cases of buccal tuberculosis in eight thousand patients in the laryngological polyclinic in Berlin. Schlieferowitsch gathered together only ninety cases of tuberculosis of the oral cavity which had been reported previously to 1885. Since that time many cases, both primary and secondary, have been reported, as Dr. Carmody in 1915 had a list of five hundred and thirty-four besides his own.

Dr. Luigi Durante, a fellow of the Mayo Clinic, reported five cases of tuberculosis of the tongue in the Mayo Clinic up to October, 1915, two of which were clinically primary and three secondary. His review of the literature up to that time gave two hundred and fifty cases of tuberculosis of the tongue. Hamel, in a German sanitarium, in early cases gave one case of tuberculosis of the tongue in twelve thousand three hundred and sixty-nine patients. Dr. Von Ruck at Winyah Sanatorium reported nineteen cases of tuberculosis of the tongue in five thousand patients, or .38%; while Dr. Walter Chappell had fifteen cases in six years, one of which was primary. The records of Vanderbilt's Clinic up to 1915 show only three cases of tuberculosis of the tongue. In four thousand and two hundred and eighty-two autopsies collected by Drs. Blancard and Durante from the records of five men (Willigk, Fowler and Godlee, Fischer, Chiari, Adami and Warthin) only twenty-six cases of tuberculosis of the tongue were found. While these last are only of the tongue and the lesions found in the entire cavity might run a few more, yet it shows the relative infrequency of tuberculosis attacking the tissues of the mouth.

It is rather surprising that it should be so infrequent when the mouth would seem such an ideal incubator with its moisture, temperature, culture medium, and protection from the light, along with the proper amount of oxygen. The writers on the subject attribute the infrequency to the impervious barrier which the squamous epithelium affords, the presence of mucus and salivary secretions, the mixing with food, and, in addition to these the natural mechanical removal of all substances brought in contact with the

mouth in eating, drinking and speaking, so that the tubercle bacilli are not retained long enough to find entrance. Then the tubercle bacilli, as they come from the bronchi, are covered with mucus, thus preventing their coming in contact with the tissues.

Tuberculosis of the mouth is classified by Grünwald into endogenous and exogenous. Levy classifies it as benign and malignant, while von Ruck in his paper spoke of a classification of milliary form and tumor or nodular form.

All the early writers gave an exceedingly grave prognosis. Later, about 1900, some writers report some cured cases, among which is Gleitzmann's primary case in which he reported a cure in 1888. At this time surgical excision or curettage, with lactic acid, was used. Most cases, if under surgical procedure and the lesion healed, succumbed later to pulmonary tuberculosis or the lesion returned. Later on old tuberculin was used and the general care of tubercular patients was combined with local treatment.

Von Ruck reported in 1912 the cure of five cases of tuberculosis of the tongue by the use of improved tuberculin of his own. Four of these cases were living and still cured at the end of fifteen, twelve, seven and six years. In the fifth case the tongue was cured at the time of the patient's death from a pulmonary hemorrhage. At the time he read his paper he had four more cases of tuberculosis of the tongue which were improving upon a watery extract of tubercle bacilli.

The treatments of various kinds which are given consist of excision, curettage, lactic acid, formalin, trichloroacetic acid, electric or actual cautery and x-ray; old tuberculin and all the measures which are used in general tuberculosis, palliative measures as cocaine sprays and insufflation of orthoform for the pain. The ulcers should be kept clean by alkaline sprays and various dusting powders. Mild astringent sprays are sometimes used. The prognosis is far from favorable unless the ulcer is small and seen early.

In looking over the literature on this subject, I was pleased to find what a considerable amount of work had been done along this line in Colorado. It speaks well for the class of work which is done here. The chief work, as far as published articles and books are concerned, has been done by Dr. Robert Levy, Dr. L. B. Lockard and Dr. T. E. Carmody. The percentage of reported cases in this state is certainly greater than in any other area of its size.

In the discussion following the reading of this paper it was stated that von Ruck was the man who later had considerable newspaper notoriety, so his statistics would have to be taken with an allowance.

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## THE TREATMENT OF UTERINE FIBROIDS; BASED ON A SERIES OF FIVE HUNDRED CASES.

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The treatment of uterine fibroids has undergone many changes. As lately as 1879 Thomas Addis Emmet said ". . . no surgeon is justified in attempting to remove the uterus for the growth of a fibrous tumor, except as a forlorn hope". Ergot, gallic acid and cinnamon, intrauterine injections of hot water or iodine, and electricity were used to control the symptoms. For a time double oophorectomy was practiced with success not only to bring about the artificial menopause and thus control the bleeding but also to produce shrinking of the tumor. Amenorrhea resulted in about 79 to 97% of cases, shrinking in 70%<sup>2</sup>. When the mortality

of hysterectomy as practiced with the wire or elastic mass ligature fell, from 60%, to from 1 to 3% under modern conditions, castration was generally abandoned. Today the Roentgen ray and radium have been added to our armamentarium.

With several methods of procedure at his disposal the physician of today who discovers a fibroid tumor in his patient must first decide whether the neoplasm requires any treatment. If interference is needed, he must determine upon the variety of treatment which is indicated.

The influence of the source of material is best illustrated by the following. Of 419 fibroid carriers admitted to the hospital and reported by me in 1915, 400 were operated upon<sup>3</sup>. These cases were selected previous to admission as suitable for intervention, hence 95.5% came to operation. Of 100 consecutive fibroid cases in my private practice 43 were neither operated upon nor x-rayed. Even this percentage must be considered high because many of the cases were referred by physicians for operation. Among the cases seen by the general practitioner I venture to estimate that more than 50% may be watched safely without suggestion of surgical interference.

In order to decide in favor of watchful waiting instead of operation, many factors require to be considered. Some gynecologists advise operation merely because they hesitate to assume the responsibility of delay, or because they feel that a given patient cannot be trusted to submit to a prophylactic examination once every six months over a period of years. Some have the furor operandi to excess, and others have been wrongly taught that every tumor requires removal.

In order to have a tangible basis for this discussion I have reviewed the four hundred hospital cases previously referred to<sup>3</sup>, and added to these one hundred from my private records.

### UNOPERATED GROUP. FORTY-THREE CASES.

#### Main symptoms:

- a. Menorrhagia, 18.
- b. Frequent urination, 1.
- c. Amenorrhea, 1.
- d. Climax flushes, 1.
- e. Constipation, 2.
- f. Backache, 2.
- g. Indigestion, 1.
- h. Sterility, 1.
- i. Prolapse, 1.
- j. Dysmenorrhea, 1.
- k. Dyspareunia, 1.
- l. Multiple abortions, 1.
- m. Pregnancy, 10.
- n. Accidental find, 2.

In a certain percentage of women who have some other trouble which leads them to seek advice, fibroids are accidentally found. In the above series two such were noted, with small symptomless tumors. To these may be added seven pregnant women with small fibroids, which neither before, after nor during gestation caused the slightest disturbance. Twelve others (c. to l.) showed symptoms due to other causes,



the tumors not exceeding the size of a three months' pregnancy.

In eighteen patients menorrhagia was the chief complaint. Either because of their youth, the desire to have children, the small size of the growth or because of special indications (1 severe neurosis, 1 blood pressure 212 mm. Hg., 1 pulmonary tuberculosis, 1 cardiac disease and bronchitis, 1 exophthalmic goitre) these patients were medically treated. Such treatment included general hygienic measures, the regulation of sex relations and attention to the bowels. When the flow began, rest in bed, short hot douches (2 quarts at 120°), and ergot (minims 15 to 30 every four hours) or styptol or stypticin (gr.  $\frac{3}{4}$  every three hours) were prescribed.

Patients in the nonoperative group should be re-examined at least once every six months and note of any change in the symptoms, increase in size of the tumor, or alteration of the general condition made. The necessity for operation may arise at any time.

In some instances, especially in the case of nervous or excitable women, it is inadvisable to inform the patient that she harbors a fibroid growth. For the protection of the attending physician it is then wise to inform the husband or some responsible member of the family of the findings, of their present latency and their potentialities.

From the above it becomes evident that there is a large number of fibroid bearers who are not seriously hampered by the tumors and who are safeguarded by continuous medical control. This group includes especially the youthful, the pregnant, those with moderate menorrhagia, all having tumors not above the size of a three months' pregnancy.

Metrorrhagia, especially hemorrhage quite unconnected with the menstrual period, always arouses the suspicion of malignancy. It is wise in such cases to curet in order to examine the scrapings for evidence of adenocarcinoma of the uterine body, which occurs with undue frequency in fibroid bearers.

#### OPERATED GROUP.

In a small but carefully studied series of operated cases the following main causes for intervention were noted:

##### Main Symptom:

Pain .....	12
Bleeding, excessive .....	10
Large size of tumor .....	9
Bladder disturbance .....	5
Peritoneal irritation due to a twist of the myoma pedicle .....	2
Rapidity of growth (one proved to be sarcoma) .....	2
Necrosis during pregnancy (myomectomy fourth month) pregnancy at term .....	2
Unsuccessful x-ray treatment (submucous) ..	1
Unsuccessful result of myomectomy (2 years before) .....	1

44

The operations required were:

Hysterectomy, 33.  
Abdominal myomectomy, 3.  
Vaginal myomectomy, 7.  
Curettage, 1.  
Mortality, 0.

#### Symptoms in 100 Operated Cases:

Pain, 68	
Pressure, 31	
Menorrhagia, 52	{ Fibroids with:
Metrorrhagia, 9	
Both, 4	
Operative findings..	{
No menstrual disturbances in 35	a. Adnexal disease, 7
Urinary disturbances, 9	b. Ovarian disease, 1
	c. Umbilical hernia, 3
	d. Necrosis of fibroid, 3
	e. Large tumor, 3
	f. Cervical fibroid, 2
	g. Prolapse, 1
	h. Pregnancy, 3

The above table, compiled from 100 consecutive hospital cases among the 400 which were operated upon, shows that pain or pressure was noted in 99% and excessive bleeding in 65%.

In crass contrast with the latter, 35% showed no disturbance of menstruation, but in the majority some complicating factor (see the table a-h) necessitated operative intervention.

In the order of their importance the following may be regarded as reasons for operative intervention unless contraindications forbid:

1. Excessive hemorrhage, not responding to palliative measures, and repeated over several months; 2, abdominal pain not ascribable to other causes; 3, pressure pain and pelvic obstruction; 4, bladder disturbance due to pressure; 5, large tumor (above the size of a five months' pregnancy); 6, rapidly growing tumor and therefore suspicious of malignancy; 7, doubtful pelvic findings indicative of serious tubal trouble or ovarian tumors in addition to the fibroids.

Bleeding which does not respond to the treatment described for the nonoperative group, if the uterus is not above the three months' size and the endometrium is not distorted, may first be treated by curettage. The curettings must always be submitted to a competent pathologist for examination. If the adnexa appear diseased curettage is contraindicated. Curetting may control the bleeding for several years.

In many cases of menorrhagia, metrorrhagia and premenstrual pain in which the uterus is of moderate size and symmetrical, a submucous tumor may be the cause. In seven of forty-four cases the growth was removed per vaginam by splitting the cervix and enucleating, usually a minor and conservative operation. In one instance a sloughing fibroid was thus removed. Four days later, because of continuous oozing, hysterectomy had to be performed on the much exsanguinated patient. Thrombosis of the femoral vein succeeded by gangrene of the foot then necessitated amputation through the leg; recovery followed.

When the tumor is large, the adnexal regions doubtful, the endometrium tortuous, the pelvis obstructed, or the growth rapid, or when several of these findings obtain, hysterectomy is indicated.

The majority of cases will call for an ab-



dominal supravaginal hysterectomy without drainage. When adnexal complications, persistent oozing, or other technical requirements necessitate drainage, complete hysterectomy with subperitoneal drainage is indicated. In a series of over four hundred cases no development of cancer in the cervical stump was observed. Therefore I cannot advocate incurring the additional danger and mortality involved in performance of a complete hysterectomy solely for this possible danger. Rarely, in obese patients with moderate sized tumors, or where a sloughing fibroid is encountered, vaginal hysterectomy is preferable to removal of the uterus by the abdominal route.

In young patients where the preservation of the menstrual and procreative functions is of prime importance myomectomy should be essayed. It is thus possible to remove numerous tumors and to explore the uterine cavity by sight and touch. It is not advisable to perform myomectomy when the resulting wound conditions are too complicated, or in patients approaching the menopause. Myomectomy during pregnancy, if necessitated by serious complications, is a safe procedure in competent hands. The uterus is most tolerant during the fourth to sixth months of gestation.

In 395 cases the following operations were performed:

Supravaginal hysterectomy, 276.  
Complete hysterectomy, 19.  
Vaginal hysterectomy, 23.  
Myomectomy, 62.  
Curettage, 15.

#### X-RAY AND RADIUM GROUP.

The number of cases in this group is small because raying, in my opinion, is contraindicated by numerous conditions. Almost all gynecologists agree that except for special reasons patients under thirty-five years of age should not be rayed.

##### Age in 500 Cases:

20-30 years .....	76
31-35 years .....	80
36-40 years .....	117
41-45 years .....	105
46-50 years .....	80
51-55 years .....	29
56 years .....	13

500

Looking at the ages of these 500 cases it will at once appear that more than 30% are at once excluded because of their youth. To these must be added cases with pregnancy complicated by fibroids, fibroids undergoing degeneration, cervical and submucous tumors, tumors larger than a five months' pregnancy, tumors with adnexal complications. Clark<sup>4</sup> properly says that "no patient suffering with pain lateral to the uterus is to be radiated".

In the series of 400 cases I found<sup>5</sup> 74 patients in whom operation disclosed complications absolutely contraindicating the use of x-ray or radium. These complications included cancer of uterus, gut and mesentery in 15, ovarian tumors

24, serious adnexal disease 13, necrotic and gangrenous fibroids 13, pregnancy 15.

On the other hand in properly selected cases x-ray or radium, when correctly used, is an inestimable boon.

The following table is self explanatory.

#### Analysis of X-rayed Group (youngest 37 years of age):

High blood pressure (170 and 220 mm. Hg.)..	2
Nephritis .....	1
Anemia (Hemoglobin 35%).....	2
Endocarditis and dyspnea.....	1
Obesity (212 lbs.).....	1
Small tumors with profuse bleeding.....	3
Epilepsy .....	1
Extreme neurasthenia .....	1
Refusal of operative treatment.....	1

13

The rays destroy the follicles in the ovary and thus bring about a transient or a permanent menopause. The technical details should be placed in the hands of a competent roentgenologist, just as the selection of cases should fall in the domain of the expert gynecologist. Radium may be used by the gynecologist if he understands the technic.

For x-ray in anemic and bleeding cases a massive initial dose must be given to avoid increase of the hemorrhage. Except in the occasional younger patients in whom a "toning down" of the bleeding is sought, the intensive Freiburg method should be employed.

Radium may be applied within the uterus or through the vagina. Intra-uterine applications of 50 mg. with filtration through 2 mm. of silver and 1 mm. of rubber for from 8 to 14 hours, repeated if necessary, usually suffices.

In every case a preliminary exploratory curettage is indicated.

Failure of radium or x-ray treatment may be due to a submucous polypoid growth or to carcinoma of the fundus. Cancer of the cervix should, of course, be readily excluded at the careful initial local examination which precedes treatment. Sarcoma of the uterus is supposedly amenable to radiation (Geist<sup>6</sup>).

In some cases a fibroid, if sufficiently large to rise out of the pelvis, may prevent descensus of uterus and bladder. The shrinkage resulting from raying may then allow a prolapse to descend and prove an unpleasant surprise.

From the above it will be seen that it is more difficult to decide upon the proper indications for raying than for operation. In general it may be said that in patients afflicted with high blood pressure, marked obesity, diabetes, serious heart, renal or pulmonary disease and severe neuroses raying should be considered unless contraindicated.

#### FIBROIDS AND PREGNANCY.

In the series of 500 cases the records were complete in 400. Two hundred and sixty-five out of a possible 340 had conceived; a fertility of 77.9%. Only 75, or 22%, were sterile.

##### Fertility in 400 Cases.

Single, 60, or 15%.  
Pregnant, 23.



No children, no abortions, 75, or 22%.

One child . . . . .	50	} 265 of the married or had children } 77.9% showed fer- tility.
Two children . . .	53	
Three children . .	31	
Four children . . .	26	
Five children . . .	63	
One abortion . . .	14	
Two abortions . . .	3	
Three abortions . .	2	
400		

Fibroids per se do not predispose to sterility unless situated submucously. Fibroids favor abortion if the uterine cavity is distorted or when the tumors are so massive as to fill the abdomen in the early months. In some instances necrosis, producing severe pain and peritonitic symptoms occurs. In two cases such necrosing tumors were removed by abdominal myomectomy in the fourth and fifth month. The bed of the tumor, which reached down to the mucous membrane, was closed by layer suture. Normal labor occurred at term. In one case the tumor reached such huge dimensions that at the fifth month interference became imperative. By abdominal myomectomy a large cervical subperitoneal fibroid was removed. In due course normal labor took place. Experience is needed to determine at operation when conservative measures are safe and when hysterectomy cannot be avoided. In some cases myomectomy combined with hysterotomy and emptying of the uterus will permit one to save the uterus and thus preserve the possibility of future pregnancies. Subsequent labors must be carefully conducted, bearing in mind the danger of rupture of the uterine scars.

The great majority of fibroids noted during pregnancy produce no symptoms (less than one-half of one percent). In the early months of gestation irregular uterine contractions or implantation of the ovum in the tubal angle may simulate fibroids. Small fibroids are also more readily palpable in a uterus softened by pregnancy. Fibroids which in the early months block the pelvis may during the later months or even during the first stage of labor, rise and produce no trouble.

During labor the pelvis may be blocked by a fibroid; transverse or other unfavorable presentations may result. The placenta may remain adherent, or after its detachment may be retained, imprisoned above an obstructing fibroid. During the puerperium, necrosis or infection of a fibroid may take place or the fibroid may serve to dam back the lochia. All such occurrences are the exception and not the rule. In more than ninety-nine percent the labor and puerperium are normal.

This short résumé of the various methods of treating fibroid growths should show that it is no easy matter to decide correctly. The age of the patient, the number of children she has had or desires to have, the gynecological status, the condition of health, the presence of complicating diseases must all be weighed. Too often the summary verdict "you have fibroids, therefore you must be operated upon" is given.

## SUMMARY.

### 1. Selection of Cases.

a. The Non-Operative Group should comprise the bearers of small tumors (up to the size of a three months' pregnancy) especially those with no complaints, the youthful, the pregnant, those with moderate or controllable menorrhagia. Fully fifty percent are comprised in this category.

b. The Operative Group includes those suffering from continued and excessive hemorrhage, abdominal pain due to pressure, large or rapidly growing tumors, sloughing growths or fibroids complicated by tubal or ovarian conditions. This group should not exceed forty percent of cases.

c. The X-Ray and Radium Group includes fibroids causing serious symptoms, in patients who are over thirty-five years old and who are suffering from intercurrent disease which contraindicates operation. Large or sloughing growths, complications such as ovarian tumors or pregnancy, contraindicate raying. About ten percent of cases normally fall into this group. There is a tendency at the present time to extend raying to unsuitable cases.

### 2. Treatment.

a. Medical, includes general hygiene, drugs (ergot, styptol), local measures (hot douches).

b. Operative, includes exploratory and palliative curettage, vaginal hysterotomy for enucleation of submucous growths, myomectomy and hysterectomy (abdominal supravaginal or complete, vaginal).

c. X-ray, palliative or radical; radium, intrauterine or vaginal.

The advantages and disadvantages of the various modes of treatment are:

Medical treatment is used tentatively. Curettage fails in many instances but at least serves to exclude cancer. Myomectomy fails in 5 to 10% of cases; its mortality is less than  $\frac{1}{2}$ %. Hysterectomy has a mortality of from 1 to 3% in competent hands. Annoying menopause symptoms may result.

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<sup>1</sup>Emmet, Thomas A.: Principles and Practice of Gynecology. H. C. Lea, Phila., 1879, p. 561.

<sup>2</sup>Döderlein u. Krönig: Operative Gynäkologie, 4th Ed., G. Thieme, Leipzig, 1921, p. 563.

<sup>3</sup>Frank, Robert T.: The Choice Between Operation and Röntgenization of Uterine Fibroids, Am. Jour. of Obst., 1915, LXXII, No. 3.

This series of 419 cases are from the first gynecological service of Mt. Sinai Hospital, New York.

<sup>4</sup>Clark, John G.: The Treatment of Myoma Uteri With Radium. Jour. A. M. A., 1919, LXXIII, 957.

<sup>5</sup>Frank, Robert T.: X-Ray Treatment of Uterine Hemorrhage. Surg. Gyn. & Obst., 1916, p. 243.

<sup>6</sup>Geist, S. M.: Jour. A. M. A., 1920, LXXIV, 752. Also Clark l. c. 4.

**CANCER WEEK, SET FOR OCTOBER 30-NOVEMBER 5, IS A NATIONAL AFFAIR AND WILL BRING UNUSUAL PUBLICITY TO OUR PRINCIPLES OF EARLY DIAGNOSIS AND PROMPT TREATMENT. YOU CAN HELP BY INFORMING YOUR PATIENTS WHAT THE MOVEMENT MEANS.**



## News Notes

Cancer Week will begin October 30 and end November 5.

A publicity campaign for raising two hundred thousand dollars to complete the fund for the new State Medical School and Hospital is now being launched. The plan is to have a so-called "dollar campaign", the idea being to get two hundred thousand people to give one dollar each. The editor surmises that this does not prevent contributions of much greater magnitude if the donor is inclined that way.

A young physician, married, who has been in Colorado three years because of sickness in his family and who does some surgery and has had excellent premedical, medical and hospital training, desires to know of an opening which will not require a large cash outlay. Address the editor for further particulars.

Dr. John C. Gorsuch has just returned to Denver after spending several weeks in California.

The Library is in need of the following copies of Colorado Medicine: October, 1920, July and August, 1921. Any copies of these dates turned in will be appreciated.

Proof prints of an article by Dr. W. W. Keen on cancer, written for the laity, have been provided in the number of some one hundred thousand, and it is hoped that the article will be read in nearly every church in the United States on the Sunday in Cancer Week.

The Fremont County Medical Society has decided to hold monthly meetings in the future and has planned a series of combined scientific and social sessions for the winter months.

Dr. G. M. Noonan has moved from Delagua to Walsenburg, where he will be associated with Dr. W. S. Chapman.

The secretary acknowledges receipt of the program of the fifty-second annual meeting of the Medical Society of Virginia to be held October 18-21, 1921, at Lynchburg.

A card from Dr. C. T. Burnett written from London, which has been de-coded with considerable difficulty, is found to say, "Having a splendid time, working enough to keep me out of trouble. Am getting some excellent work with Lewis. Shall go to Vienna shortly".

The number of constituent societies has been raised to twenty-five by the addition of the new Arapahoe County Medical Society, whose charter was authorized at the recent annual meeting.

Dr. D. A. Bronson of Telluride has given up his location in that town and gone to Chicago for post-graduate work. His future location, whether within or outside of Colorado, has not been made known.

A hospital association has been organized in Fort Morgan to secure funds for and build a modern hospital for the use of that community. The sum of money to be raised during the month of November is \$50,000. The organization seems to be well planned and will be of a non-sectarian nature.

A new light on the character of the Pueblo profession is thrown by Dr. Singer. When arranging for the trap-shoot breakfast, in order to determine how many Pueblo physicians he could rely upon for attendance, he gave his office clerk a list of them all and asked her to get a "yes" or "no" from each. In a short time she told him her work was completed, and every man had promptly and emphatically answered "yes". Singer felt all puffed up over this loyal support for some hour or more until, when passing his clerk's desk, he saw this memorandum which she had undoubtedly used as her phone message: "There will be a trap-shoot at 6 o'clock Thursday morning. Will you be there?"

The fourth annual meeting of the American Dietetic Association will be held in Chicago, October 24, 25 and 26, at the Hotel La Salle. All the meetings will be held in the Convention Hall on the nineteenth floor, the exhibits, both commercial and non-commercial, being in the ball room on the same floor. In the reception hall connecting the two rooms the registration and information desks will be found.

### Public Health Institutes to Be Held.

It is stated by the Bureau of the Public Health Service that in response to a preliminary announcement of the Public Health Institute, which the Public Health Service had planned to hold in Washington next fall (but which has been postponed indefinitely), a large number of city and county health officers, physicians, nurses and

others replied indicating a definite intention or hope of attending.

The Public Health Service has felt that it could not ignore this widespread interest in institute work, and after correspondence with the various State Boards of Health, has decided to hold a series of twenty-four institutes at various population centers throughout the country, one of which is to be Denver. The Denver date will be in the spring.

## Medical Societies

### COLORADO NEUROLOGICAL.

The regular meeting of the Colorado Neurological Society was held September 17 at the Denver Athletic Club.

The following officers were elected for the ensuing year: Dr. George A. Moleen, president; Dr. Edward Delehanty, vice president; Dr. C. S. Bluemel, secretary-treasurer.

Dr. G. H. Ashley was elected to membership.

Dr. C. S. Bluemel reported a case of epidemic encephalitis with involvement of the cervical cord. The patient, a boy of fifteen, presented prodromal symptoms for five or six days, consisting of weakness, lassitude, irritability, neuralgic pains in the forehead, and occasional vertigo and a sense of unreality. The frank symptoms subsequently developing were visual hallucinosis, flaccid paralysis of the right arm and later of the left arm, paralysis of the intercostal muscles, and slight difficulty in voiding urine. There was horizontal nystagmus and intermittent diplopia. Temperature 102°. Pulse 120. Respiration 52, Cheyne-Stokes in character. Leucocytes 18,100; polymorpho-nuclears 81%. The spinal fluid contained fresh arterial blood, which did not clot on standing. The Wassermann reaction on the spinal fluid and blood serum was negative.

Patient died of respiratory failure forty-eight hours after the onset of encephalitic symptoms.

Case discussed by Drs. Moleen, Delehanty, Neuhaus, H. T. Pershing, Stevens, and Lazell.

Dr. Edward Lazell spoke of the mechanism of regression and cited a case of fear in a young woman with goitre. Thyroidectomy had not alleviated the subconscious fear. Psychoanalysis revealed a fear of drowning, which was traced to the father-relationship. Dr. Lazell spoke of the over-action of the adrenals resulting from fear, of the stimulation of their secretion on the thyroid, and of the consequent tendency of fear to induce goitre.

Case discussed by Drs. Tepley, Neuhaus, and Moleen.

Dr. Howell T. Pershing reported a case of optic neuritis in a young man, the case being of unusual interest, inasmuch as the neuritis was probably a symptom of encephalitis. Optic neuritis was of five months' standing, and there was now present seven diopters of swelling in the right eye and five diopters in the left. Headache had been present at first and was occasionally accompanied by vomiting. These symptoms had subsided. There had been a few momentary attacks of syncope, or epilepsy. X-ray examination showed an opacity smaller than a pea immediately posterior to the sella turcica. The sphenoid and ethmoid sinuses had been opened, but without material benefit to the patient.

Case discussed by Drs. Lazell and Moleen.

Dr. L. V. Tepley reported a case of headache which had persisted for two years. The patient, a young Italian of thirty, attributed his suffering to a blow on the head received thirteen years previously. Had not been unconscious following this episode. During the early course of his sickness he was operated upon for chronic appendicitis with adhesions, but no improvement in the headache resulted. He now had occasional attacks of vomiting. Ten months ago he had a light seizure in which he was unconscious for a few minutes. Unconsciousness was ushered in with tingling of the right hand and shoulder. The sphincters relaxed during this attack. Following the attack there was a period of mental confusion, persisting for two or three hours. There had been four subsequent attacks of unconsciousness with loss of sphincter control. There was recent failure of eyesight. The cranial nerves were negative, except for slight haziness of the optic discs. The left knee jerk was slightly more active than the right. The physical examination was otherwise negative. The Wassermann reaction on the blood serum and spinal fluid was negative. The spinal fluid was



under moderately increased pressure and contained seven cells to the cubic millimeter. The colloidal gold curve was normal. Urine negative. Dr. Tepley suggested a tentative diagnosis of brain tumor.

Case discussed by Drs. Bluemel, Moleen, Howell T. Pershing, and Goldhammer.

Dr. Philip Work reported an obscure case, in which the dominant symptom was lancinating pain at the top of the head. The patient, a vigorous young man of twenty, had been treated for frontal sinusitis three weeks prior to the onset of his present symptoms. The sinus condition had apparently disappeared. On account of extreme pain at the top of the head the patient took ninety grains of veronal, from which he was stuporous for twenty-four hours. At the end of this period there was marked restlessness, and the patient would frequently cry out. There was photophobia and a slightly choked disc. The evening temperature was 100°. The knee jerks were exaggerated in an unusual degree, but were bilaterally equal. There was an exhaustible ankle clonus. A Babinski reflex was present on one side. There was no rigidity of the neck or lower extremities. Headache was pronounced. Leucocyte count 7,200. Spinal fluid under increased pressure. Globulin increased. Ten cells per cubic millimeter. Wassermann reaction negative. Spinal fluid findings were practically identical on the following day. The temperature was lower, but the leucocyte count had increased to 15,000. The patient complained of continuous pain and was kept under morphine for two or three days. Vision became progressively impaired until only bare light perception remained. The patient made a rapid recovery from these alarming symptoms and was discharged from the hospital at the end of nine days.

Dr. Work asked for opinions as to the probable diagnosis, and discussion on the case followed.

Dr. George A. Moleen reported a case of congenital cerebro-spinal syphilis of the paretic type, in a young man of eighteen. About a year ago the patient began to be troubled with hazy vision in the left eye and staggering gait. There was intermittent headache with a sense of stupidity. There was occasional numbness of the backs of the hands and later in the lips and tongue. Examination of the patient disclosed a rather low mentality. The patient was unsteady in walking and kept the feet wide apart. He swayed when standing with the eyes closed. The general physical development was good but Hutchinson's teeth were present. The Wassermann test was positive on the blood and negative on the spinal fluid. The globulin content of the spinal fluid was slightly increased. The patient's mental and physical condition improved on mercurial inunctions.

C. S. BLUEMEL, Secretary.

#### FREMONT COUNTY.

The regular meeting of the **Fremont County Medical Society** was held September 26, 1921, in the office of Dr. C. H. Wilkinson, Cañon City, there being present Drs. Wilkinson, Adkinson, Orendorff, Holmes, Hutton, Webb, Davis, H. C. Graves, Little and, as visitors, Drs. Graves, Lamb, Ashley, Roberts and Lane.

Otis Orendorff presented a case of an old lady with an acute tumor in the suprasternal notch, which was subject to periods of swelling, and the patient had also been bothered for years with a hacking cough. A diagnosis of thyroid disease was made by some members and concurred with by the rest.

R. E. Holmes presented a case of a young man who had been bitten by a spider or tarantula several days previously, but had entirely recovered, and as Dr. Holmes did not attend the patient, the nature of the treatment was uncertain. Dr. Holmes also told of a case of supernumerary mammary glands which secreted milk during lactation.

H. C. Graves presented a complete and detailed paper upon the subject of "Serum Treatment in Pneumonia" and reached the conclusion that early and frequent doses of pneumococcal serum is of value in the treatment of lobar and bronchial pneumonia, but its value in flu pneumonia is doubtful.

Dr. Wilkinson then acted as host, and with the assistance of his wife, served a most delicious and bountiful lunch, after which each member and guest recited a story in which he himself was the "butt of a joke".

In closing, a unanimous vote of appreciation was tendered Dr. Wilkinson.

OTIS ORENDORFF, Secretary.

CANCER WEEK BEGINS OCTOBER 30.

## Book Reviews

**The Medical Clinics of North America** (issued serially, one number every other month). Volume 4, number 6. By Boston Internists. Octavo of 297 pages, including complete index to Volume 4 and 35 illustrations. Per clinic year (July, 1920, to May, 1921). Paper, \$12.00 net; cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company.

The Boston number of the *Medical Clinics* opens with an interesting contribution by Dr. Henry A. Christian on the right and wrong uses of diuretics in which he states that diuretics have definite indications for their use and should be used only when these indications are met with. Dr. Francis W. Peabody follows with a discussion on the vital capacity of the lungs in heart disease, the determination of which he considers of practical value in the management of patients with heart disease. Dr. I. Chandley Walker considers the causes and treatment of seasonal hay fever in a thorough and practical manner. Dr. C. W. McClure's contribution on the treatment of functional gastrointestinal disturbance discusses a method of treatment which has given very satisfactory results. Dr. Samuel A. Levine discusses the clinical recognition and management of conditions associated with rapid heart action which do not generally necessitate any special apparatus. Dr. Elliott P. Joslin considers some practical lessons for physician and patient in diabetes. Two curable cases of anemia are presented by Dr. George R. Minot. The vaccine treatment of asthma is discussed by Dr. F. R. Rackemann. A number of interesting clinics by Drs. J. P. O'Hare, Edwin A. Locke, W. H. Robey and Frederick T. Lord follow. The clinical significance of changes in the form of the electrocardiogram is considered by Drs. Paul D. White and C. Sidney Burwell. This issue contains an unusual amount of interesting subject matter covering a wide scope.

J. L. M.

**The Surgical Clinics of North America** (issued serially, one number every other month). Volume I, number 3. By Boston Surgeons; 345 pages, with 159 illustrations. Per clinic year (February, 1921, to December, 1921). Paper, \$12.00 net; cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company.

The third number of the *Surgical Clinics of North America*, published in June, is the Boston number. The issue comprises a carefully selected diversity of subjects, is well edited, and on the whole is extremely interesting reading.

As would be expected from the orthopedic center of the country, a considerable section is devoted to this branch of surgery. The subject is taken up by the orthopedic staff of the Massachusetts General Hospital, of which Osgood is the head. His own contribution on operative treatment of tuberculosis of the knee, given in his usual clear and flowing style, is the leading article. Adams' review of end-results in congenital dislocation of the hip is a thorough, carefully prepared study. A description of the Symes amputation by Wilson, all steps illustrated, gives a clear conception of a very valuable, but not widely appreciated, operative procedure.

Of the many worth-while clinics in this excellent number, a few out-standing ones should receive special mention. Graves' demonstration of cases after radium treatment shows a wide experience in this treatment of two important gynecological subjects. His successes and failures in cancer and in menorrhagia in the young is worth the most careful consideration.

The views of an authority like Whittemore on lung abscess make his contribution a very valuable one.

Congenital pyloric stenosis is presented by Ladd of the Children's Hospital. His opinions are based on results in seventy-eight pyloroplasties done at this hospital. His operation is clearly described with the help of cases and illustrations.

G. B. P., Jr.

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CANCER WEEK BEGINS OCTOBER 30.



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(To Be Continued.)



# Colorado Medicine

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## Editorial Comment

### VENEREAL DISEASE LAWS.

Comment on the Presidential Address Delivered  
at the Fifty-first Annual Meeting of the  
Colorado State Medical Society.

The author of the address to which reference is made is entitled to much credit for his excellent paper and depth of reasoning. He is correct as to the importance of the physician in the affairs of the commonwealth, but it is to be regretted that he did not become better acquainted with the venereal disease law and its operation before discussing that phase of his subject.

By reason of personal friendship I find no pleasure in refuting what Dr. Smith has said. However, I feel as if the profession and the public should have some salient facts in defense of the law to which I have referred.

The most important features of the Colorado law are now a part of the law in nearly every state. Much of our law and regulations has been copied by other states. A few months ago a certain western state, rather tardy in falling in line as to the propaganda against social disease, asked the U. S. Public Health Service in Washington for assistance in the matter of framing a law and regulations. The state asking for help was told to adopt Colorado regulations and the advice was followed. I mention this to show that our law, although not perfect by any means, stands as well perhaps as that of any other state.

Briefly stated, some of the salient points of advantage in venereal disease legislation were brought out by the All-America Conference in 1920, thus:

- (a) To trace sources of infection.
- (b) To make possible the enforcement of effective treatment.
- (c) To supply statistical information as follows:
  - (1) The prevalence of venereal diseases within a given population.
  - (2) The part played by prostitution, commercialized and clandestine, in spreading infection.
  - (3) The part played by congenital infection.
  - (4) The relation of infection to the sexes, conjugal condition, race, age, social and industrial groups.

- (5) The relation of alcohol to venereal disease.
- (6) The relation of narcotics to general infection.
- (7) The relation of venereal diseases to insanity, to feeble-mindedness, to delinquencies, to tuberculosis."

In answer to the questions asked in the presidential address I will say that the law has improved the status of the citizens of the state of Colorado. Hundreds have been brought to a realization of a state of infection the nature of which they had not previously understood. Investigations have been made and are still being made for the purpose of ascertaining the extent of venereal disease in the various state institutions. Nearly all states are now entering upon this same work in their institutions. This alone shows the trend of opinion among the leaders of the medical profession. This is constructive work which will in a measure serve as a foundation for greater and more effective work in the future. Every physician knows that disease, and especially venereal disease, has a bearing directly or indirectly on the number of inmates in penal and eleemosynary institutions. Any law that leads to a better understanding of these matters must be not only of great economic value but also a factor in bringing about better health, longer life and an improved race.

Infected persons under the provisions of the law and regulations are very largely protected against medical quacks and patent medicines. They are told to seek advice, care and treatment at the hands of competent physicians. The child at birth is a patient and has a right to protection from venereal disease, congenital syphilis and blindness. Through the operation of our law, if properly understood and obeyed by physicians and laymen, the number of cases of blindness will be reduced, there will be fewer abortions, not so many still-born infants and a reduction in the number of cases of apoplexy, paralysis, locomotor ataxia, insanity, epilepsy and feeble-mindedness. In some instances whole families of neglected syphilitics have been found and induced to take treatment. The law requires that every patient be furnished with reliable and instructive printed matter concerning venereal disease, thus aiding in the cure and preventing conveyance of disease to others. Is this not looking after the interest of the patient?

It was hinted in the presidential address that patients would avoid treatment by reason of

publicity in the reporting of cases. I think it is quite well understood that the name of the patient is not given when reporting. There is no publicity whatever except in cases where there is evidence that the conduct of the patient is not such as to reasonably protect the innocent. A venereally diseased person has no right to convey his disease to others by reason of his carelessness, indifference or ignorance. Instead of patients avoiding doctors and remaining a menace to society by reason of the law the reverse is true, as evidenced by the fifteen thousand cases in Colorado that physicians have reported as the law requires. Physicians and patients who persistently violate the law are very likely sooner or later to get the undesirable publicity. Those who obey the law are protected against publicity. Strict obedience to the law is the best for all.

From the criticisms offered the inference would be that the law was created without sanction of the state medical society, but the doctor did not know that several members of the said society, including some eminent specialists, were consulted before enactment of the law and the original draft modified to suit their views.

With our increased knowledge of the suffering and loss of life resulting directly and indirectly from gonorrhea and syphilis, it seems almost incredible that any person would be opposed to reporting such disease when it is much more serious and dangerous than many other reportable diseases.

S. R. McKELVEY.

#### THE CAMPAIGN TO ENSURE THE NEW HOSPITAL AND MEDICAL SCHOOL.

During this month the University of Colorado is waging an active campaign to raise the remaining \$200,000 necessary to ensure the erection of the new Medical School and State Hospital. Toward the \$1,500,000 which the project will cost the General Education Board has pledged \$700,000 and the State has appropriated \$600,000, both sums contingent upon the raising of the \$200,000 balance by the University. Unless this amount is raised the entire project will fail when almost on the verge of realization.

With the thought in mind that the hospital will belong to all the people in the state and will be of service to them, the Regents have determined upon a "Dollar Campaign" instead of seeking a few large subscriptions. An effort will be made to obtain one dollar from each of 200,000 citizens of Colorado.

The preliminary publicity has already begun, advertising having been placed in 160 newspapers throughout the state. Many newspapers are in addition showing a most commendable public spirit by informing their subscribers of the enterprise through their news columns. On Saturday, November 26, every man and woman in every residence in Colorado where there is a telephone will receive through the mail a little booklet explaining the purpose of the campaign and making an appeal for their dollar. During the week ending December 3, a house-to-house canvass will be made in every center where a

committee can be organized to collect these dollars.

Two vitally important factors in this campaign are evidently the development of widespread publicity and the formation of active local committees. In both the medical profession can be of utmost assistance. While in most places the committees are being organized under a layman as chairman in order to broaden the appeal, many physicians will be asked to serve as members. There is no type of publicity so effective as that carried on by word of mouth, and if all the physicians of the state will devote even a minimum of time to making the project clearly understood by all with whom they come in contact its success is assured.

The appeal of the plan to humanitarian instincts is universal, for the hospital will be for the indigent only and will afford them every facility for recovery. Furthermore, the opportunity is offered to Colorado to establish itself firmly and permanently as a great medical scientific center. The project must not be allowed to fail!

C. N. M.

#### CONSERVATISM AT THE PUEBLO MEETING.

Perhaps one who, like the writer, has not been engaged in active practice during the past few years and is therefore far enough removed from the concrete facts of practice to see them in perspective, is for that very reason the better qualified to form a philosophy of medicine, just as the man who is in intimate relation to the concrete facts is best qualified to form a science of medicine. The two are not the same.

This, at least, is the warrant for this expression of opinion regarding the medical tendencies disclosed at the Pueblo meeting. Those who attended that meeting heard an eminent surgeon, in an admirable address, explain that the best way to immobilize a bone fractured into an articulation, is to treat it in such a way that at no time will there be much restriction of its natural mobility. In another admirable paper it was explained that the best method of performing a nephrectomy is that which—when it is possible to choose it—leaves the kidney in situ. Finally, in a paper not inferior to the other two, it was explained that if a bullet in a bronchus be not too aggressively pursued it may—luck being propitious and patience outbalancing anxiety—be coughed up in the course of a few months.

From these seemingly unrelated facts one might deduce the philosophic principle that the best surgeon is the one who does the least surgery, and—but for the fear of an unseemly levity in the conclusion—might go further still and decide that the best of all doctors is the man who doesn't practice medicine at all.

This, however, would be a superficial conclusion not warranted by the papers cited nor by anything else that was brought out at the meeting. It requires more and better surgery to effect the cure of a fractured articulation without immobilizing it than it does to stiffen a joint for life by the application of a beautiful plaster cast to an unreduced fracture. There are those, how-



ever, who, fortified by their recollection of their own excellent results in the use of splints, will continue to hold that immobilization has its legitimate place in the treatment of fractures.

It must also be conceded that it requires far more skillful surgery to save a badly damaged kidney than it does to remove one, and the author of the paper cited was careful to point out that there are degrees of damage that demand removal.

There is nevertheless, not alone in surgery but in obstetrics and internal medicine, a tendency toward conservatism that gathers momentum at a geometric rate of increase. One could wish, as the years flit by and visions of false teeth aggravate the pains of rheumatism, that the conservatism that is revolutionizing medicine might presently touch dentistry.

A. C. McC.

### STATE BOARD OF HEALTH NOTES.

#### Communicable Diseases Reported in Colorado During September, 1921.

COUNTY	Chickentox	Diphtheria	Erysipelas	Measles	Mumps	Scarlet Fever	Smallpox	Tuberculosis	Typhoid Fever	Whooping Cough	Pneumonia
Adams	1	1						789	2		
Arapahoe	4					1			3	1	
Archuleta			1								
Baca	1				3						
Bent									4		
Boulder	14					1		1	1		
Chaffee	5								1		
Clear Creek	1										
Crowley					3			1	1		
Custer	3										
Delta									1		
Denver	4	67	4	1	11	16	8	417	15	9	
El Paso		3						332	1		
Fremont		5	4		1			1	2		
Garfield					6						
Gunnison				1					1		
Huerfano		7							11		
Jackson						5					
Jefferson		3						45			
Kiowa									1		
Kit Carson						1		3	1		
Lake		1						1			
La Plata			1					1	1		
Larimer		17		2	1			2	3		
Las Animas								1	2		
Lincoln						1	6	4			
Logan				1	5				1		
Mesa								1	3		1
Mineral					1						
Montrose					3				6		1
Morgan					1			2	5	6	
Otero		30			9			2	4		
Ouray					1						
Phillips									1		
Prowers		8			4				6		2
Pueblo	4	85			3	1		10	5		
Rio Grande		1				3		2	1		
Saguache						3					
Weld		7	1					12	7	3	2
Totals reported	8	263	5	9	14	58	29	1,627	93	19	6

#### LIST YOUR CONTRIBUTIONS FOR JUBILEE VOLUME.

Attention is called to the request of the Committee on the Jubilee Volume that each doctor send a list of his contributions to medical literature, giving proper references to journal, volume and page, to Dr. C. D. Spivak, Metropolitan Building, Denver. This will aid in making the com-

pleted volume accurate, for it is very difficult to get up a work of this kind and have it absolutely free of omissions. It is to the author's interest, if he wants to insure the completeness of the record as it pertains to him, to comply with the committee's suggestion.

## Original Articles

### DIVERTICULITIS OF THE LARGE BOWEL.\*

JAMES C. MASSON, M.D.

Section on Surgery, Mayo Clinic, Rochester, Minnesota.

Diverticulitis was not recognized as a surgical entity until 1898. In that year Graser demonstrated the presence of an inflamed diverticulum of the large bowel as the cause of a left sided peritonitis. Previous to that time the gross lesions produced by the inflamed process with or without malignant change had often been found at operation and at necropsy, but their etiology had not been understood and many of the inflamed masses were regarded as malignant. One of the earliest articles which no doubt referred to the condition was published by Virchow, in 1853, under the title of "Isolated circumscribed adhesive peritonitis of the colon". Following the publication of Graser's paper many surgeons from different countries reported cases. One of the first articles in the English language was published in 1904 by Beer; he referred mostly to the work done in Germany. In 1907, Mayo, Wilson, and Giffin reported in detail, with pathologic findings, five cases in which the colon had been resected for diverticulitis, and referred to several other cases in which operation had been performed in the Clinic in which there was little doubt that diverticulitis existed. Three of the operations were performed for vesicosigmoidal fistula of inflammatory origin. In 1904, Moynihan read a paper before the Clinical Society of London entitled "The mimicry of malignant disease of the large intestine", which referred to diverticulitis. Few cases were reported before 1914, and they were all diagnosed on the operating table or at necropsy. In that year Carman reported three cases. In the first case he had not been able to account for several small barium shadows outside the lumen of the bowel. From the similarity of the history in this case to the histories in the cases of diverticulitis which had been found at operation W. J. Mayo suggested the possibility of multiple diverticula of the large bowel, and exploration confirmed the diagnosis. Since that time numerous cases have been recognized clinically. In many cases the symptoms are so mild that surgery is not indicated. During the last eighteen years 289 cases have been diagnosed diverticulitis; operation has been performed in only 116.

Diverticula may be found throughout the entire length of the intestinal tract. Hansmann

\*Read at the annual meeting of the Colorado State Medical Society, October 5, 6, 7, 1921.



reported a case examined at necropsy with more than 400 sacculations, no doubt congenital. I shall discuss here, however, only the "acquired" or "false" diverticula found in the large bowel, especially in the sigmoid and descending colon. They may be found at any point on the circumference of the bowel, but the greater number are on the sides between the lateral and meso-

The heaviest patient in our series weighed 230 pounds, the lightest 109 pounds. The average weight was 170 pounds.

The cause of this condition is not well understood, but constipation or an increase in the pressure within the lumen of the colon is, without doubt, the most important consideration. Fifty-nine and forty-eight hundredths percent of our patients gave a history of obstinate constipation. Frequent straining at stool doubtless accounts for many cases in which constipation is not marked. An almost constant finding at operation or necropsy is an abnormal amount of fat in the wall of the bowel, in the appendices epiploicae, and in the mesentery; this probably weakens the normal resistance of the wall of the viscus.

The physiologic rôle which the sigmoid is called on to perform in civilized countries results in frequent distention with more or less solid fecal matter and gas. The use of copious enemas frequently adds to the dilatation. Venous congestion is a natural result of dilatation; this causes enlargement of the openings through the muscular part of the wall, resulting in points of lowered resistance through which mucosal hernias are liable to push. In some cases there probably is a congenital predisposition which results in poor muscular development. In other cases there is a tendency to fatty degeneration in the muscle after middle life.

Diverticulitis of the bowel is of special importance because it is a strong predisposing factor to malignancy. Seventeen (14.65 percent) in our series had malignant changes at the time of operation. In some cases the malignancy, no doubt, starts in one of the diverticula as a result of chronic irritation of the mucous lining of the sacculi by a fecalith, in other cases

Lumen of sigmoid

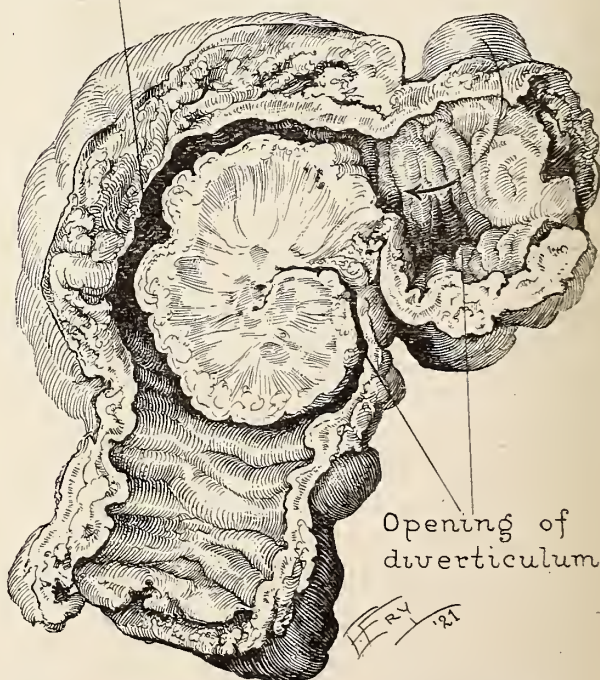


Fig. 2. (Case AS4962). Diverticulitis of the sigmoid. Inflammatory mass causing obstruction.

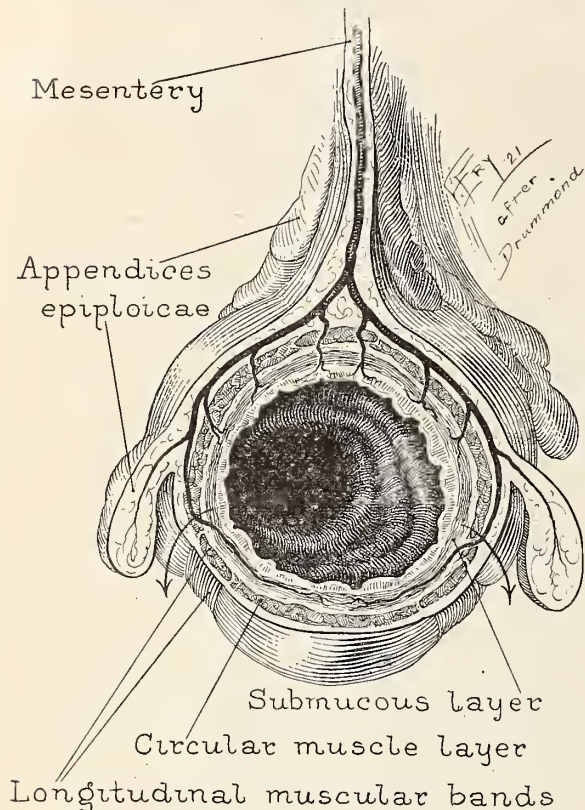


Fig. 1. Distribution of the vessels of the pelvic colon. Arrows indicate the probable sites of diverticula.

colic bands. Figure 1 shows the anatomy of the bowel wall with the weak points on the side of the viscus where the blood vessels pierce the circular muscle. The diverticula have been aptly called "mucosal herniae" by McGrath. Small projections of mucous membrane first penetrate the muscular wall and then become covered with subserous fat and peritoneum. They vary in shape and size; some are straight and others flask shaped. As they grow they follow the path of least resistance, which is toward the mesentery or into the appendices epiploicae. In some cases they are mere recesses of mucous membrane in the muscular wall; in other cases they contain fecaliths 4 by 5 cm. in diameter. Fig. 2.

I have recently reviewed the histories of the 116 patients operated on for diverticulitis in the Mayo Clinic since 1902. Eighty-one of the patients were males and thirty-five were females. The youngest patient was fifteen years of age and the oldest seventy-five years. Several authors, including Erdman, have reported diverticulitis in children, but it is essentially a disease of middle life and old age. The average age of our patients was fifty-two years. Overweight has been considered a strong predisposing factor.



with stricture of the lumen of the bowel, as the result of kinking or pressure on the bowel from an inflammatory mass, since the mucosa is irritated by the passage of the fecal content under abnormal pressure at this point.

#### Symptomatology

Uncomplicated diverticula of the large bowel give no signs on which a diagnosis can be made; nevertheless we must consider each one a source of possible general infection, peritonitis, or malignancy, since fecal matter is retained within the diverticulum which irritates the mucous lining and leads to ulceration. Ulceration permits the passage of bacteria or their toxins through the thinned out wall and also predisposes to malignancy. Various authors have suggested the percentage of cases that give trouble, but this is a very difficult question to settle. Probably many persons who die of old age without symptoms have multiple diverticula.

The outstanding symptom is constipation of long standing in patients past middle life who are somewhat overweight. Most patients have attacks of more or less severe pain. This was noted in 79.3 percent of our cases. Each diverticulum is capable of producing the same condition clinically which acute, subacute, and chronic attacks of appendicitis may cause, such as general peritonitis, local peritonitis, localized abscess, obstruction of the bowel by adhesions or kinking, and fistulas into other organs. Sometimes a hyperplastic extramucosal inflammation produces a tumor which can be palpated for a few days, and then disappears to reappear again with another attack of pain, tenderness, and rigidity. This history was obtained in forty, about 34 percent of cases in which operation had been performed.

As a rule, the disease is limited to the sigmoid and descending colon, but it may be found throughout the entire length of the large bowel. In the ascending and transverse colon, however, where the fecal matter is more fluid, it seldom gives rise to trouble.

#### Diagnosis

Diagnosis can be made only after careful consideration of all the facts. The conditions which have to be ruled out are malignancy, sigmoiditis, hyperplastic tuberculosis, actinomycosis, syphilis, lesions in the pelvis, and appendicitis. All patients in whom diverticulitis is suspected should be examined by a competent roentgenologist. The extraluminal shadows in the roentgenograms are proof of the condition, but when obstruction is present the filling defect is identical with that of malignancy. During an acute attack of peridiverticulitis of the sigmoid or descending colon, the symptoms are the same as those of acute appendicitis, consequently the possibility of a left sided appendix, or, if the patient is a woman, some inflammatory condition of the left tube or ovary, is to be considered. In such cases it is not advisable to make a roentgenogram; an exploratory operation is indicated. If the seat of trouble is in the rectum, or the transverse or ascending colon, the difficulty of diagnosis is increased. If peridiverticulitis is extensive, a mass may be felt during an attack;

the mass gradually disappears after acute symptoms subside. In other cases the mass suddenly disappears as the result of spontaneous rupture



Fig. 3. (Case 306103). Roentgenogram of barium-filled colon, showing multiple diverticula distributed throughout its entire length.

of an abscess into some hollow viscus, most commonly the urinary bladder or some part of the large bowel. Figs. 3 and 4.

As the condition is extramucosal, macroscopic blood is seldom found in the stool, while in cancer it is almost a constant finding. Since the openings in the lumen of the bowel are very small and can seldom be seen the sigmoidoscope



Fig. 4. (Case 105595). Roentgenogram of barium-filled colon with diverticula of the sigmoid and an occasional small diverticulum of the descending colon.



is of little or no aid in the diagnosis. Negative findings rule out malignancy. Furthermore, diverticulitis does not produce emaciation, anemia, or cachexia, even when there is marked stenosis. Diverticulitis and carcinoma are frequently found coexisting in the same section of bowel. In the majority of cases the malignant condition is no doubt secondary and is the result of chronic ulceration and interference with circulation. On the other hand, in cases of carcinoma with partial obstruction from a napkin ring type of growth of long standing with marked dilatation of the bowel above the growth it is possible that the diverticula may have developed later.

#### Treatment.

Some authors, among whom are Telling and Erdman, advise operation in all cases in which the condition is recognized. This is a most radical opinion, I believe, since the operation, with the best technic, is performed with considerable risk. As Turner expressed it, "Our difficulty will commence when the condition is better understood. It is all very well to say that surgery is the only remedy, but it is a formidable undertaking to excise a colon simply because it harbors multiple diverticula which have not caused serious symptoms". Operations for diverticulitis probably carry the same mortality as operations for malignancy, approximately ten percent.

If the diverticula are few and are giving subacute symptoms, it is easy and safe to remove them separately, much the same as an appendix is removed, but if they are multiple, extensive resection, ileocolostomy, or colostomy is the practical surgical procedure. If a fistula is present, it should be cut across and the opening into the secondarily involved viscus closed, and, if possible, the involved section of the bowel should be resected with an end-to-end or an end-to-side anastomosis. If there is obstruction, either partial or complete, from hypertrophic peritonitis or mesenteritis, a colostomy is generally advisable above the diseased area, and at a secondary operation (when the acuteness of the infection has subsided) a resection or a short-circuiting operation. In many cases the diseased section can be treated by a three-stage Mikulicz operation much more safely than by any one-stage operation. In some cases appendicostomy or cecostomy is of great benefit, since it prevents flatulent distention, and by frequent flushing of the large bowel stasis will be overcome and the colon content will be kept fluid or semifluid.

During acute manifestations of the disease, the expectant treatment advised by Ochsner for appendicitis after the first twenty-four hours is advisable generally. Even if rupture takes place, general peritonitis seldom follows and operations during the acute stage are frequently unsatisfactory, and furthermore are followed by a much higher death rate than the operations performed later.

Before 1914, when the value of the roentgen ray in diagnosis had not been realized, only the cases demanding surgical treatment and those

accidentally found while operating for other conditions were recognized during life. Since 1914, many cases with very mild symptoms or without symptoms have been diagnosed, in most of which medical management has been given, which consists in the regulation of the diet and bowels. Saline laxatives are particularly useful since they tend to keep the content of the lower bowel fluid and prevent further dilatation of the existing saccules.

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#### OUR PRESENT KNOWLEDGE REGARDING THE CAUSE OF CANCER.\*

LEONARD FREEMAN, M.D., DENVER.

We know that cancer is on the increase, that it is one of the greatest scourges of mankind, and that one out of every ten individuals over forty years of age dies of it, and we don't know its cause; but this we must find out if we are going to have any success in preventing and curing it. Hence every effort should be used towards the solution of this all-important problem.

The Great War has upon its shoulders many crimes against civilization, but none is perhaps much worse than the stoppage of investigation into the cause of cancer. In 1914, with a party of surgeons, I visited many clinics in continental Europe—in France, Austria, Switzerland, Germany and Belgium. Everywhere investigations into the causation of cancer were in active progress, especially in Germany. For instance, in Heidelberg there was an institution, under the auspices of the Government, devoted to this object alone, fitted out as both a hospital and a laboratory. There was every facility for research and animal experimentation, and there was ample clinical material upon which to test the conclusions arrived at in the laboratories. At the head of this institution was Prof. Czerny, one of the most famous and scientific surgeons of his time, who was enthusiastically devoting the latter portion of his life to this tremendously important work. He told me with the greatest

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earnestness that they were hot upon the trail of the cause of cancer, and confidently hoped to solve the problem within a comparatively short time.

Then came the war. Investigation stopped. Laboratories were broken up. The young men who worked in them either were killed or had their energies directed into other channels. The government funds were diverted from the art of curing to the art of killing—from the laboratories to the armies. Professor Czerny died.

What was true of Germany also was true to a like or a lesser degree of other countries, so that now we have to begin all over again.

In more recent times there have been two theories as to the cause of cancer: (1) It is due to infection—to micro-organisms. (2) It is not due to infection, but to other causes. The advocates of these two theories have been very bitter in their controversies and very positive in their assertions. It is not uncommon, for instance, to see such statements as these: "As is well known, it has now been proved beyond reasonable doubt that cancer is not a germ disease;" or again, "From the evidence at hand, there can be no question that cancer is the result of microbic infection." For some time the germ-theorists have been snowed under, but there are indications that they were far from being frozen out and that they are again coming to the surface.

Let us glance at some of the arguments for and against these two theories:

#### **A—Points in favor of the infectious origin of cancer:**

1. The belief, which has existed for centuries, that cancer is infectious. This cannot be wholly disregarded, because life itself is in the nature of a vast and continuous experiment, with many acute observers constantly on the job. As an illustration of this sort of evidence, it has been noticed that cancer is more prevalent in certain terrestrial zones, in certain countries of these zones, in certain sections of these countries, in certain cities of these sections, in certain streets of these cities, in certain houses of these streets, and lastly in certain rooms of these houses, although these rooms were not occupied continuously by members of the same family. This may not be because cancer is infectious, but nevertheless it makes one think.

2. The gross resemblance of the primary lesions of cancer to those of syphilis, tuberculosis, leprosy, and other diseases the microbic origins of which have been demonstrated. Also the close resemblance in their lymphatic distribution. For instance, every surgeon has been struck, and sometimes puzzled, by the remarkable similarity between disseminated cancer of the peritoneum and peritoneal tuberculosis—the membrane in both being studded with innumerable tubercles which require microscopic study for their differentiation.

3. The fact that malignant tumors may be transmitted freely from one animal to another, for instance in mice. The opposition maintains that it is unfair to draw conclusions from ani-

mals and apply them to human beings, which may or may not be true.

4. The fact that tree-cancers closely resemble in structure and growth the cancer found in man, and that a microorganism has been isolated (Smith) from them which will reproduce the original growth when inoculated into other trees. There is no denying the significance of such phenomena in spite of the obvious objection that a tree is not a man. It is of interest to note, in this connection, that there is a whole forest in the Yellowstone National Park in which almost every tree bears one or more large cancers, the inference being that they have been infected one from another.

#### **B—Points in favor of the non-infectious origin of cancer:**

1. Failure to find a cancer-germ. Many such discoveries have been announced, some of them with a great show of certainty, but none of them has stood the gaff of criticism. In the face of so many failures the most of us have lost faith to such an extent that it would take much to jolt us out of our skepticism. But, on the other hand, it was a long time before the bacilli of tuberculosis and leprosy, or the spirillum of syphilis were demonstrated, and during that time our inability to produce a bacterial cause was almost universally accepted, you will remember, as evidence of its non-existence.

2. The fact that doctors and nurses seldom if ever contract cancer from their patients, nor husbands cancer from their wives, although they may come into the most intimate contact with it. This does not prove much, however, except that infection does not occur easily, as it does in syphilis and leprosy, and that it perhaps requires a specially fertile and peculiarly prepared soil, as is the case with many agricultural products. Not long ago the same argument was used regarding tuberculosis and other diseases which have since been shown to be infectious beyond question.

3. The fact that cancer usually does not appear until middle life, it being argued that if it were infectious it should appear at any time. But this is a poor argument which may be used on either side of the question. It merely means that the soil in the young is not yet prepared for the seed; and, besides this, there are many exceptions to the general rule.

4. The strongest argument presented by the opponents of the germ-theory is the fact that metastases from a cancer, even when at a distance and in totally different tissues, are nearly always histologically identical with the original growth. This is hard to explain without admitting that actual cells from the parent cancer, and not micro-organisms alone, are carried to the point of metastasis; for how could cells from a highly specialized organ grow in places where they do not belong unless they were transplanted there?

But because a thing is hard to explain does not mean always that it is inexplicable. Why not admit, for example, that the cancer cells are carried to the seat of the metastasis and that they form a necessary nidus for the secondary



malignant growth? Such an assumption would not militate against the presence of a specific cancer-germ, which is also a necessary pathologic factor, and which might be transmitted alongside of, or within, the cancer cells. In other words, cells alone might not be enough; they might have to be infected cells. We know that certain germs have a selective affinity for certain organs and tissues of the body—why not for certain cells? And why shouldn't these cells carry this infection with them wherever they go, and reproduce, under its peculiar stimulation, the tissue from which they came?

This is all, of course, pure speculation; but perhaps we have a right to speculate as much upon one side as upon the other.

Whether we are adherents of the infectious or the non-infectious origin of cancer, we must admit the important part played by lowered resistance of the tissues—due to advancing age, heredity, local irritation, racial peculiarities and many other more or less uncertain factors. But to maintain that any of these producers of lowered resistance, such as the irritation of a pipe, or the attainment of forty years of age, is the fundamental cause of cancer is another question altogether. Throughout our lives we all experience lowered resistance in a multitude of forms, but we do not all develop cancer. There must be something else, just as there was something else in tuberculosis.

Attempts have been made to explain this "something else" by assuming the existence of cells left over from foetal life; by the erratic action of too much or too little of some endocrin secretion having to do with the growth of tissues; and even by the rather fanciful assumption that groups of cells may grow up in the body without proper sympathetic nerve-control, like criminals in a body politic, finally overstepping the bounds of cellular decency and respectability by forming a cancer, just as the uncontrolled members of society form anarchistic and other associations.

There may be truth in all these ideas, but why the necessity of assuming such things when the theory of infection offers an equally good and much more simple explanation? I am sorry I cannot settle this important question, but the fact is just this—the cause of cancer has not yet been found, so you will have to assume an explanation according to your lights.

Quite recently Dr. A. J. Ochsner has lent energetic support to the theory of the parasitic origin of cancer. He believes that the parasite exists in the excrement of man or animals, or both, and that from this it easily finds entrance to the human body, frequently by means of uncooked garden-truck which has been fertilized with manure. In support of this supposition he calls attention to the circumstance that cancer of the alimentary tract is much more common among those peoples who subsist largely upon raw vegetables, such as the Japanese, than among those who cook their food, such as the inhabitants of India. On the other hand, cancer of the skin is uncommon among the Japanese, who bathe frequently, and common among the Hindustanese,

who are not noted for their external cleanliness. In like manner, animals, such as the hog and the dog, whose food is derived from questionable sources are apt to have cancer; while those preferring cleaner nourishment, such as the rabbit, are free from the scourge. He also calls attention to the fact that fish living in water contaminated by sewage are particularly subject to malignant growths.

However much we may be influenced by these various theoretical conclusions, and I have mentioned but a few of them, the question perhaps can be settled only by the faultless demonstration of the cancer germ itself. This Dr. Ochsner claims has recently been done by one of his associates, Dr. Newsome of Chicago. The proof consists in the isolation of a certain micro-organism from a cancer, its cultivation upon an appropriate medium, and its re-inoculation into the same patient with the production of another cancer with the characteristics of the original one. This sounds good, but we have been deceived so many times that we have become wary and will require much confirmation before we finally are convinced. Let us hope that this time the report is true.

## CHRONIC NON-TUBERCULOUS PULMONARY SUPPURATION.\*

L. W. FRANK, M.D., DENVER.

The differentiation of tuberculosis from other chronic pulmonary conditions takes on added importance when it is remembered that in the latter, aggressive treatment can materially shorten the period of disability. These chronic pulmonary suppurations can be roughly divided into medical and surgical cases. Under the medical come such conditions as diffuse fetid bronchitis, and diffuse bronchiectasis. Under the surgical come localized bronchiectasis, encapsulated and interlobar empyemas, lung abscess, ulceration and gangrene. The last three can be looked upon as different stages in the same type of process.

Many of these cases are treated for tuberculosis for varying periods of time, and many of them remain undiscovered as residents of sanatoria for the tuberculous. There are a few outstanding features and symptoms which, while not pathognomonic, are characteristic enough to lead to a more thorough investigation. A paroxysmal cough, accompanied by the expectoration of a large amount (as much as a pint to a quart daily) of extremely malodorous sputum, which is often blood streaked, is very suggestive of a condition other than tuberculosis. At times definite hemoptysis is seen. If at any time the drainage of an abscess cavity is interfered with, through the plugging of the connecting bronchus, symptoms of sepsis appear (fever to 103° F. or 104° F., chills, sweats, gastrointestinal disturbances etc.). These attacks are sometimes frequent, but usually not of long duration. Between the paroxysms these

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patients are usually afebrile and have a normal pulse. So-called hypertrophic pulmonary osteoarthropathy is usually well marked, affecting the fingers and toes. Hypertrophic nodules are also seen at times in the mouth, particularly on the hard palate. This condition disappears when proper treatment is instituted, the clubbed fingers regain their normal shape, and the nails may be desquamated and new nails form, as was shown in one of my cases after the obliteration of an abscess cavity. General body nutrition is usually good. There may be more or less emaciation, but in many cases the normal body weight is maintained. These few symptoms pertain more to the surgical than to the medical type of cases.

A definite pathologic classification of these pulmonary suppurations is impossible because all of the lung structures are usually concerned; that is to say, the lung parenchyma, bronchi and pleura, are all involved in the same process. A lung-abscess may be surrounded by an area of softening, or by dense fibrosis, and, branching out from this, numerous bronchiectatic dilations. This has been explained by Manges<sup>1</sup> as follows: "If the drainage is interfered with there is a formation of new connective tissue, which contracts and causes stenosis or displacement of the bronchi. Small bronchiectases are thus caused. Then as a result of coughing, pressure of secretion and traction, these cavities will enlarge. Körte also directs attention to the not infrequent softening of the pulmonary parenchyma when there is much putrid decomposition in bronchiectatic cavities. This will produce lesions which cannot be differentiated from pulmonary gangrene. This distinction, however, is not important since the operative indication is the same."

Again it is difficult to determine, even at operation, when the lesion can be inspected, whether a lung abscess has ruptured into the pleural space, and produced an encapsulated empyema, or whether an empyema has ruptured into the lung, or whether the original lesion was an interlobar empyema. I have derived much help in the inspection of these cavities from the introduction of an esophageal speculum by means of which all parts of the cavity can be clearly seen.

The secondary changes occurring around a chronic lung abscess make it hard to say at times whether the lesion is an abscess or a bronchiectatic cavity—in fact the fibrosis and thickening of the pleura may obscure the cavity entirely, so that there are no demonstrable physical signs except dullness and the x-ray shows only thickened pleura. Barker<sup>2</sup> says, "In the so-called chronic abscess of the lung, we have to deal, as Fränkel has shown, less with actual abscess formation (in which a cavity arises from purulent softening) than with necrosis, followed by ulceration, the condition occurring in the course of subacute indurative pneumonia, or in cirrhosis of the lung where necrosis may result from insufficient blood supply in the indurated tissue. Such a process should scarcely be designated 'chronic abscess'; it would seem prefer-

able to use the terms suggested by Charcot, namely 'chronic ulcerative pneumonia' or 'chronic ulcer of the lung'". This description must apply however to the more chronic forms in which the secondary changes are marked, because in many chronic lung abscesses the x-rays show the cavity to be clear cut and well defined.

#### Etiology.

Much has been said and written recently about lung abscess following tonsillectomy, and indeed a number of my patients have had no hesitancy in ascribing their lung disease to, and dating it from, the time of the tonsillectomy. This cannot always be proven to be the direct cause, since a pneumonia may intervene; however, the sequence of the symptoms is usually such that the tonsillectomy can be blamed, at least indirectly. The experiments of Mullen<sup>3</sup> show that septic material can be absorbed from the nose and throat and lodged in the lung by way of the lymphatic and blood streams, also Mullen and Ryder<sup>4</sup> have shown that the same result can be produced by inhalation of this material. In the recent influenza epidemic lung abscess was a frequent sequel to bronchopneumonia. It also occurs after ordinary lobar pneumonia. Septic processes in the subphrenic space, liver or retroperitoneal area may extend through or rupture through the diaphragm into the lung. In a certain proportion of cases a foreign body has been shown by the x-ray, or the bronchoscope, to be the cause of the lung abscess. Septic emboli from distant organs following operations, or from disease such as puerperal fever, are responsible for some cases. Direct extension or rupture from a mediastinal abscess, or disease of the esophagus, are also causes. Trauma directly to the lung, or to adjacent structures, may also be mentioned. All these conditions of course produce acute abscesses, but through failure of diagnosis, prolonged treatment, or other causes, they become chronic. During the past year and a half seven cases of chronic lung abscess have come under my observation. Three followed tonsillectomy; one was due to the rupture of a retroperitoneal abscess through the diaphragm, and three occurred after influenzal bronchopneumonia.

#### Diagnosis.

These conditions must first be differentiated from pulmonary tuberculosis, particularly if operative intervention is contemplated, and secondly they must be differentiated from one another. If tubercle bacilli and the various fungi are shown by repeated examinations, by the antiformin method, to be absent from the purulent sputum of patients who have a paroxysmal cough with the expectoration of large quantities of sputum, some other form of pulmonary infection should be strongly suspected and searched for. This can be supplemented by guinea pig inoculation. Of the physical signs dullness is the most constant; if there is not too much thickening of the pleura and of the other tissues surrounding the lesion, the other signs of cavity formation (amphoric breathing, whispering pectoriloquy, etc.) can be elicited. The



signs are also modified by the presence or absence of a communicating bronchus. The x-ray is of great value in showing the position, size, distribution and character of the lesions. Some rely almost entirely upon the roentgenogram for the diagnosis, but a very thick pleura may obscure an abscess in the picture, and then we must rely on the history, symptoms, course of the disease, and on the aspirating needle.

Foreign bodies of sufficient density are often shown by the x-ray; others are at times discovered by bronchoscopic examination. Other valuable information can be gained by means of the bronchoscope. Yankauer quoted by Manges<sup>1</sup> claims that he is now able to differentiate bronchiectasis from multiple abscesses. In bronchiectasis, besides finding a change in the lumen of the bronchus, he has observed that the area can be sucked dry and will remain so. In purulent infiltration, however, there is no change in the lumen of the bronchus, and the area cannot be kept dry because there is a constant oozing of pus.

In the diffuse varieties the usual bilateral physical signs can generally be easily demonstrated, but also in the localized forms, other portions of the lung can become secondarily infected. And as Hedblow<sup>5</sup> says, it must be recognized that the presence of pus in the bronchial tree is a constant menace to other portions of the lung. Lilienthal<sup>6</sup> says, that in trying to arrive at an exact differential diagnosis of chronic intrapleural suppurations it must be remembered that as a working rule all may be regarded as "lung abscesses". A lung abscess may begin outside the lung itself, as for example in an empyema, and the secondary abscess may even drain itself through a bronchus. Occasionally the radiograph may show a level surface line with clear space above and opacity below. But when it comes to operation we must be prepared for surprises.

#### Treatment.

Drainage of a lung abscess by thoracotomy is likely to result in a cure (Lilienthal<sup>6</sup>). Spontaneous cures have been reported. Drainage is usually prolonged and a bronchial fistula may persist for many months, but spontaneous closure occurs particularly if the drainage is placed at the most dependent part of the cavity. If in spite of proper drainage the cavity does not become obliterated, some form of plastic operation must be undertaken. If the pleura is tightly adherent to the chest wall over the lesion, the abscess can be opened in a one stage operation, with local anesthesia, by the resection of one or more ribs and the insertion of a drainage tube. If gangrene is present, or there be hemorrhage, the cavity must be packed with gauze. When the lung is not adherent to the chest wall the operation should be done in two stages. After thoracotomy the abscess is located with the aspirating needle, and the lung then fixed to the opening in the wall. After several days, when firm adhesions have formed, the abscess is easily opened with the cautery or by blunt puncture. This avoids infection of the

pleural space. In any case in which intrathoracic work must be done, some form of differential pressure anesthesia should be used. Intra-tracheal anesthesia is the best. It has many advantages, among which may be mentioned that it prevents lung collapse, the lung can be inflated or deflated at will, making it more accessible, and the respiratory movements are almost nil. In the cases in which there are marked secondary changes, particularly if bronchiectatic dilatations extend out from the primary lesion, the abscess is hard to locate, drainage is difficult, and is not likely to be successful. This type of case can be greatly benefited by some form of thoracoplastic operation, either the Sauerbruch (in which portions of all of the fixed ribs are resected) or some modification of the Estlander, depending upon the size and location of the lesion. These operations must be supplemented by wearing a suitable thoracic pad, or by tight strapping with adhesive plaster. The intrapharyngeal insufflation of ether or of nitrous oxide and oxygen has been the form of anesthesia most helpful to me in this type of operation.

Good results have been reported in the treatment of acute lung abscess by artificial pneumothorax, by Tewksbury<sup>7</sup>, Simon and Swezey<sup>8</sup> and others. This, of course, can be applied only to those cases which do not have pleural adhesions, and therefore can rarely be of use in the chronic forms. Lilienthal<sup>6</sup> has this to say about this subject: "I have been surprised in some of my cases, especially those of bronchiectasis, at the tremendous toughness, thickness and rigidity of the inflammatory tissues surrounding the diseased focus. This point is enough to convince one of the futility of treating these cases by artificial pneumothorax."

Pneumectomy is the ideal treatment for large, localized accessible bronchiectases.

In diffuse bronchitis and bronchiectasis, postural treatment to facilitate drainage by the natural route is of great benefit. Creosote inhalations and creosote internally are useful in combating the obnoxious stench of the sputum. These measures, together with general hygienic and climatic treatment are our chief weapons in this class of cases. Any form of treatment in these conditions is at the best very tedious, but the general benefit and cures that can be obtained should stimulate continued effort.

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## DISCUSSION.

**C. O. Giese, Colorado Springs:** It seems to me this paper might have been discussed with the other, because there are so many points of similarity between the two. It is all a question of whether the patient is tuberculous or non-tuberculous. These cases the doctor has shown that have come to the sanatorium are definitely ill. There are other cases, however, as mentioned in the preceding paper, many of which have nothing the matter with them. About twelve to fifteen percent of all the cases coming into the sanatoria in this country are definitely proved to be non-tuberculous. There are about half of that number that are ill, and the other are not sick in the ordinary sense of the term. There is some confusion, I think, about the diagnosis of the cases that have just been cited, as to whether or not oftentimes they are cases of lung abscesses with resultant bronchiectasis, or ordinary bronchiectasis. One of these fades into the other. A lung abscess, a condition starting as lung abscess, after about two or three months' time oftentimes becomes a bronchiectasis. Two months should be the limit of waiting for a spontaneous cure. A very large percentage do cure spontaneously within two months, particularly those cases following tonsillectomy. After two months the question of operation should be considered. After two years, for instance, as some of the doctor's cases have been of that long duration, ordinarily they are not going to heal spontaneously. Those of you who have seen these cases at postmortem can readily understand why they are not cured. As the old authors used to say, abscesses in the lung do not heal like abscesses in other places. They are hard; an indurative process starts up. There is just one point that I might mention which was in connection with the doctor's paper, and that is the question of determining whether these cases can be operated at one-stage or two-stage operation. I mentioned this in Denver at our sanatorium meeting. It is a very simple thing to do, and is done by the ordinary artificial pneumothorax apparatus. The surgeon presumes the lesion approaches the surface in some place. He wants to know whether he can get in there and drain this abscess or not. Anyone who is accustomed to doing pneumothorax can tell him that, and can tell him just how far he can go, if he will take a little time and patience to do it. You insert the needle where you think the abscess comes nearest the surface. If you get an oscillation you can tell him right away that you can not go in there, at least in a one-stage operation, because you have a free pleura. If you do not get a free pleura, then begin to map out your area, and you must go in a large number of places, because you might miss an open space. By so doing you can point out to the surgeon within what boundary he must go and within what boundary he must keep. We had a case which we operated where it showed the area was not much larger than five centimeters in diameter. The surgeon did go in there and the patient was cured. If he had gone an inch outside of it he would have immediately infected the pleura.

In closing I might mention a case which has been extensively written up in the literature, of a young soldier who came out to Colorado with a diagnosis of tuberculosis made by a very good internist, apparently, but without examination of the sputum. This man had a definite dullness in the right base. I inserted a small needle there and withdrew about five cc. of pus. Very foolishly I did not try him out with a manometer. It was a very unwise thing to do, and perhaps it would have avoided a lot of trouble later on. One of our best Colorado surgeons operated this man under local anesthesia. Wanting to be very sure of his location, he put in his needle after the man was on the table, and took out pus. He left the needle in position and went in and took out a rib, finding an absolutely free pleura. He did the only wise thing to do under condition of that kind, which was to close this man up under forced expiration, which he did, leaving the abscess as it was. There was enough trauma there to produce adhesions, and he was afterwards operated on very successfully. What we should have done was to try that man out with the manometer, and the operation could have been performed with a two-stage operation, or some other procedure could have been undertaken. This method of outlining the area into which the surgeon can go, and where he can not go, is very easily done with the pneumothorax outfit. There are a lot of things you can do with the pneumothorax outfit besides inducing pneumothorax.

**O. M. Gilbert, Boulder:** This subject is so vital to us all that I think it needs a good deal of dis-

cussion. I would have liked to see a little further emphasis put upon the possibility of cure by artificial pneumothorax, especially in the early stages. The work of Tewksbury has been exceedingly encouraging. Our own experience is limited to four cases. One was an acute case following the aspiration of a tooth during a tonsil operation. After the tooth was removed the temperature of the boy went up to 105 degrees, and even in the face of that we induced pneumothorax, with the result of a perfect cure. I exhibited the boy a year ago at the Clinical Society and found nothing wrong with him. Another case was a chronic one of nearly a year's duration which was becoming rapidly septic, with pneumonic type of symptoms, the man's temperature rising rapidly, in which I was induced to do a pneumothorax to stop the spread of the condition. On that case I was only partially successful. I did stop the spread of the septic process and limit the condition so that the surgeon was able to go in, and he had a perfect cure. Another case in which we were successful to a certain point was that of an abscess found near the root of the right lung, which had existed about ten months; this was also a case following tonsillectomy. This man had several hemorrhages. We did a pneumothorax there with most gratifying results, and his temperature, around 101 to 102 degrees, came down to normal, and the man gained ten pounds; and then a calamitous thing happened—a rupture of this abscess into the general pleural cavity—and the man became generally septic and died.

Another case was a complete failure, largely because of the extensive old adhesions, and the fact, as Dr. Giese has mentioned, that this case was not purely abscess. The abscess continued, and there was such a degree of bronchiectasis that we used the x-ray, which showed it as largely a matter of bronchiectasis. In this case we failed entirely. In another case we attempted to make pneumothorax, and we could not get any start whatever on account of the adhesions. I think we can look at these cases as probably being within the help of pneumothorax in the early stages. One other thing I would have liked to hear the doctor emphasize is the postural treatment. I believe if we could make "circus ladies" of all these folks so as to let them swing at the heels a certain length of time, we would get tremendously increased results. In Vienna they have a long board in which they have as high as seven children lying down at an angle of sixty-five degrees from the horizontal and keep them three-quarters of an hour each day. Most of us prefer fifteen to twenty minutes three times a day. We can easily devise a board like this. Postural aid is perhaps one of the greatest aids we have. It is of tremendous benefit.

**E. D. Downing, Woodmen:** Dr. Gilbert's remarks remind me that about four years ago he visited the Woodmen Sanatorium. He asked if we injected the negative sputums into guinea pigs as a routine procedure, and I had to tell him that we did not. It has taken me about three years to realize that in cases of abscess and tuberculosis in which you cannot find tubercle bacilli by microscope this should be done. In the army sanatoria it was not done, and I believe that laboratories can render a great aid by injecting negative sputums into pigs the first week the patient is in your care. If you wait two weeks a lot of the non-productive cases dry up in this climate so that you are unable to get a suitable sample later on. In regard to the bacteriology of these cases: in one case which was operated on in our institution, the virulent bacteria from the lung traveled up under the skin and into the neck and caused death from gangrene and sepsis. Therefore, I believe that the bacterial flora in these cases should be worked out very carefully before operation.

**Arnold Minnig, Denver:** Mr. Chairman, it has recently been pointed out that sometimes the bronchoscope will reveal the point from which these abscesses come, and that the injection of bismuth in these cases helps. The fact of the matter is, in the February Journal of Roentgenology, a series of these cases was demonstrated. In my estimation the fact that every case got along so well is most too good a result, so I don't know how that is going to come out. I just want to emphasize Dr. Gilbert's suggestion that in the early cases, or in any case, the administration of artificial pneumothorax is at least worth while; you cannot hurt the patient, anyway.

**Oliver Lyons, Denver:** I would just like to ask the doctor in regard to drainage in these cases, that was recently brought out so forcibly by Graham of St. Louis.

**Dr. Frank (closing):** I will answer the doctor's question and pass the rest of the discussion, since I have taken a little more time in showing the



pictures than was allowed. I have not used Dr. Graham's formula in this work. If there is any question in any given case about the two layers of the pleura being non-adherent, I use intra-tracheal anesthesia. The lung can then be brought up to the chest wall or taken away from the chest wall to any desired extent. If the case is of long standing and the pleura has dense adhesions, local anesthesia will suffice; but if there is any question, the intra-tracheal method is used.

## News Notes

In October a typhoid epidemic was threatened in Las Animas, but prompt action on the part of local and state officers seems to have prevented it.

The Pueblo County Medical Society offered prizes for the best report from laymen of the public meeting held in the auditorium on the Wednesday evening of the State Society meeting. Thirty-six reports were turned in.

Dr. C. E. Tennant of Denver was the principal speaker at the November meeting of the Larimer County Medical Society.

Dr. J. U. Sickenberger of Grand Junction has gone to New York City for six weeks' postgraduate study.

Some hundred and sixty guests attended the dinner given at the Metropole Hotel, Denver, in honor of Dr. Kennon Dunham of Cincinnati, who, following the dinner, addressed the Denver County Society on the subject of x-ray diagnosis in tuberculosis of the chest. Many out of town guests were present.

Dr. David E. Hoag of Pueblo has been elected president of the Midwest Association of Anesthetists. This association takes in states as far east as the Mississippi river.

That cancer week in Denver was successful in creating wide publicity for the principles of early recognition and treatment can not be questioned. The newspaper clippings on this subject which reached the editor's desk filled one waste basket.

Dr. T. E. Carmody of Denver left for Hot Springs on November 13 to attend the meeting of the Southern Medical Association, at which he will read a paper on "The Increasing Importance of Bronchoscopy".

Dr. J. N. Hall of Denver returned early in November from Chicago, where he addressed the Chicago Medical Society on the subject of "Sub-phrenic Abscess".

A male x-ray and clinical laboratory technician, well trained, would like a position. His name and address can be obtained from the editor.

Dr. E. E. Langdon, formerly of Silverton, is now seeking a new location. If any one who knows of a good opening wishes to get in touch with Dr. Langdon his address will be in care of the City and County Hospital of Denver.

Dr. T. L. Eyerly, formerly of Tioga, is now with the Public Health Service in Denver, 927 United States National Bank building.

Dr. Walter E. Hayes, formerly of Segundo, is now located at Sterling, Colo., where he will practice in association with Dr. C. J. Latta.

Dr. Geo. H. Cattermole, formerly of Boulder, is now settled in Pasadena, Calif., where he is practicing pediatrics with office at 807 Central building. Dr. Cattermole says, "I may return to Boulder at the end of the school year, but that will depend on whether California is more attractive than Colorado".

Dr. H. W. Aufmwasser has recently returned to Denver after a two years' stay in Europe.

The State Pathological Society of Texas, in establishing a code of ethics, has decided that advertising by its members shall be limited to professional cards indicating no more than name, specialty and address. It has adopted in toto a rather lengthy resolution previously adopted by the Colorado Society of Clinical Pathologists dealing with the subject of lay technicians, commercial laboratories and advertisers. This question will probably be treated editorially at a later date, with regard to both clinical and x-ray laboratories.

Antivaccinationists in Colorado Springs have been trying by petition to secure a revocation by the city council of the existing compulsory vaccination regulations of that city. The movement was effectually checked, largely by the work of the El Paso County Medical Society. The council having refused revocation, a special election will probably be held in January to decide the will of the people and satisfy the petitioners.

## Medical Societies

### COLORADO OPHTHALMOLOGICAL.

The regular meeting of the **Colorado Ophthalmological Society** was held on May 21, 1921, at the Minnequa Club, Pueblo, Dr. J. J. Pattee presiding. The meeting was preceded by a dinner at which the Pueblo members entertained the other members of the society as well as a number of other guests.

F. E. Wallace, Pueblo, again showed a case of severe chronic iridocyclitis which had been presented in October, 1920, and which had continued to become worse, the ignorant parents neglecting to accept treatment.

Discussed by J. A. Patterson, W. C. Finnoff and A. C. Magruder.

F. E. Wallace, Pueblo, presented a case of chorioretinitis. Discussed by W. H. Crisp.

H. M. Thompson, Pueblo, presented a patient (shown at the meeting in October, 1920) upon whose left eye, which was microphthalmic and had a congenital coloboma of the iris, he had recently done cataract extraction. The other eye was also cataractous, but the left eye had been selected for operation first as being much the poorer eye of the two. Discussed by W. H. Crisp and W. C. Finnoff.

H. M. Thompson, Pueblo, again presented a case of tuberculous iridocyclitis which had been brought before the society in February, 1921. Under tuberculin there had been marked improvement, alike in the local and in the general tuberculous condition.

H. M. Thompson, Pueblo, presented a case of acute iritis which had come on twenty-four hours after a dose of 0.4 grams of arsphenamine, administered on account of central lues. Discussed by W. H. Crisp, W. C. Finnoff, J. A. McCaw and F. E. Wallace.

J. J. Pattee, Pueblo, presented a man whose left pupillary sphincter was partially paralyzed as the result of a blow on the eye from a large piece of hot steel. Discussed by H. M. Thompson.

J. J. Pattee, Pueblo, showed a man the choroid of whose left eye had been ruptured as the result of a blow on the eye from a large "fish plate". There were two crescent-shaped ruptures to the temporal side of the optic disc. Discussed by W. C. Bane, J. J. Pattee and A. C. Magruder.

J. J. Pattee, Pueblo, presented a case of phlyctenular conjunctivitis considerably resembling an episcleritis. Discussed by W. H. Crisp and A. C. Magruder.

J. J. Pattee, Pueblo, presented a case of disseminated choroiditis.

WILLIAM H. CRISP, Secretary.

### PUEBLO CLINICAL AND PATHOLOGICAL.

The regular meeting of the **Pueblo Clinical and Pathological Society** was held Wednesday, October 12, 1921, at 7 o'clock. Fifty were present.

The following was the program:

**Interstitial Hepatitis**, Case Report, J. H. Woodbridge:

Edna B., age four months.

Family history: Both parents healthy; one brother, age five years, healthy; no history of tuberculosis or syphilis. Mother's blood Wassermann negative.

Previous history: Normal delivery, two weeks premature, weight five pounds; breast fed five weeks, undiluted cow's milk since. Jaundice noticed on third day. Child has not thrived.

Physical examination July 5, 1921: Small infant, much emaciated, weight 7 10/16 pounds. Very sick. Temperature 103 degrees; diarrhea; no subcutaneous fat; deeply jaundiced, greenish-yellow. Anterior fontanelle measures 2 cm.; throat, mouth, head, neck, negative; heart and lungs negative; abdomen large and prominent; liver three fingers' breadth below costal margin, hard, smooth, not nodular, notch felt, but no gall bladder felt; spleen one finger breadth below costal margin; extremities emaciated; otherwise normal. Reflexes (knee jerk, pupil, abdominal), normal; no rigidity of neck. Examination of stools shows free fats and fatty acids, no bile. Urine negative except for presence of bile. Hemoglobin, 60 per cent.

Progress: Fat-free diet, mercury by mouth in rather large doses. September 7, no improvement. Pronounced ascites; eight ounces of ascitic fluid withdrawn. Sp. G., 1.011; alb., 1.75 percent; bile present; moderate amount of cells present, small



lymphocytes, 99.5 percent. September 14, extreme ascites, 16 ounces aspirated. September 27, death. Postmortem examination could not be obtained.

Diagnosis: Congenital cirrhosis of liver, due probably to obliteration of bile ducts.

#### Discussion.

C. W. Streamer asks if after drawing off the fluid it did not reform?

F. E. Wallace: I believe that the case must have had a diseased spleen because of the fatty globules found in the stool.

R. H. Finney: The case bears some relationship to the Banti type.

J. W. Craighead: I would like to know what the blood count was.

F. M. Heller: I suggest that it would have been proper to have inserted a tube for the purpose of observing bile flow.

H. T. Low: I naturally think of syphilis in connection with this case. A Wassermann in the presence of bile would not have been acceptable, therefore would have suggested a spinal fluid test.

J. F. Snedec: What was the indication for tapping child?

J. H. Woodbridge, in closing: Tapping, hope for relief of the child because of pressure and interference with breathing. The fluid reformed very rapidly each time after tapping, although I reduced the liquid intake by fifty percent. One important thing which was neglected was a blood count. Diagnosis was made because of jaundice, bile in all the fluids. Syphilis excluded because parents were both healthy. The mother showed a negative Wassermann, and no history of miscarriage. Mercury was given by mouth.

#### Subcutaneous Emphysema Following Thoracotomy, W. S. Johnston.

I wish to present a case of emphysema following thoracotomy, the chief point of interest being the extent of subcutaneous emphysema. Patient colored, aged sixty-five, weight 180 pounds; family history negative. Had suffered pain in right chest previously for about three weeks. Cough constant; dullness extended almost to apex of lung; temperature ranged from 100 degrees in the morning to 104 degrees in the afternoon; chills and sweat constant. Operated under local anesthetic at 12 M. One-inch length of the sixth rib in axillary line was resected and about four quarts of opaque liquid expelled. Two soft rubber tubes and one gauze drain were inserted and the wound stitched. Patient did well until the following day at 4 p. m., when he began coughing constantly. Stitches removed at 4:30 p. m. Emphysema increased rapidly and extended over entire body to his knees. Death followed at 9 p. m., forty-five hours after operation. With wound open wide, what caused the increase of emphysema?

#### Discussion.

D. E. Hoag: Mentioned a case with a cut throat; was under influence of liquor; the wound was stitched; after fifteen minutes emphysema developed; it extended as far as nipples. Upon reopening wound, found a tiny hole in the larynx. This was closed, wound restitched and patient proceeded to get well.

R. H. Finney: Asks if the case was tubercular or pneumonic. Many cases do better after needling operation and may clear up without resection. If the aspiration does not clear it, operation can be done later. I should say this was an old standing case. A leak was probably from the bronchus.

J. W. Craighead: In many cases it is hard to tell the causes, but I think the cough a very prominent factor because of spreading so extensively, and have a suspicion that a pneumothorax was present and would explain the phenomenon. I doubt if emphysema had anything to do with the death, but it may have been due to shock.

H. T. Low: I wonder if a gas bacillus infection may not have been causative factor, coming to a head after operation?

William Senger: We see similar conditions following rib fractures, a small piece of tissue, acting as a valve, allowing air to enter but no exit.

H. A. La Moure: I have seen two cases in insane patients. Both were given to constant hollering, symptoms appearing following the exertion. Both got well in a few days.

J. H. Woodbridge asks if the emphysema began at the incision and if it first went up or down?

C. W. Streamer wonders if an erosion or pressure from the tube was a causative factor.

J. J. Pattee suggests that air accumulation was pumped into tissues by the breathing but could not get away. He mentioned a case, starting from

the pharynx with crepitation and swelling of neck. It was a mechanical case. All subsided in two days.

J. W. Johnston, in closing: The emphysema started around the wound, first spreading upward and then downward.

#### Prognosis in Pulmonary Tuberculosis. J. W. Craighead.

1. History, symptoms and physical signs are all important.

2. Symptoms alone of the most importance.

3. Patient with the desire to recover, financial ability and no history of alcoholic excesses, has a better chance than patient not so favored.

4. Slight involvement of lungs, afebrile temperature, slow pulse, no gastric disturbance, no extrathoracic complications, usually mean a good prognosis.

5. Patient should be under observation for a few days for a better prognosis.

#### Discussion.

R. H. Finney thinks we look upon the tubercular case with a more gloomy aspect than we should. Too much haphazard treatment. More interest must be taken in these cases and one should go into details of the case and carry out scientific treatment. Emphasize the importance of sanitarium treatment, for the knowledge gained by the patient makes prognosis much better.

W. S. Johnston mentioned a case of a man, age forty-five, with tuberculosis and pleurisy complicating. He deemed the case dying from the tubercular process. By taking out a rib it gave drainage and the patient got well.

J. J. Pattee asks if there is real value in heliotherapy?

J. H. Woodbridge: One element which influences prognosis is age; a patient above thirty having a better prognosis than one of twenty. Also the type; peribronchial offers a better prognosis. If a softening process begins, it offers a poorer prognosis.

William Senger offers sardines as a treatment. At least, he mentioned a case which apparently was on his dying bed. To satisfy a wish the dying man was given sardines. He ate all he wanted and continued to do so for about ten days. He improved and finally got well.

J. W. Craighead, in closing: Regards aspiration as only a means of relieving pressure and making a patient more comfortable. He considers that heliotherapy has a place in treatment. It acts as a tonic; better results from it in the extra-pulmonary type. From eighty to ninety percent of such cases get well. Tuberculosis cases from fifteen to thirty years of age show a greater mortality.

Each patient has a prognosis all his own, depending on many factors, and you can not average cases as to prognosis.

#### Ocular Tuberculosis. H. M. Thompson.

The prognosis in ocular tuberculosis, although frequently favorable, is difficult. Some of the worst-looking cases often recover with removal of the foci of infection and proper detail of treatment. I have had three cases recover with good vision, where both eyes were extensively involved with a chronic uveitis of tubercular picture and reaction, while several others failed to show any permanent improvement. It is the rule that the eye cases do not occur where there is extensive pulmonary involvement, but are often found in patients without a general phthisical symptom-complex. I believe many are due to intestinal disturbance rather than to tonsils or teeth. Allow me to say a word as to treatment in tuberculosis of the eye. Many men to whom we refer these cases for treatment either refuse to give tuberculin or are unwilling to assume the responsibility. Tuberculin is to ocular phthisis what mercury is to lues. It is as near a specific as has been found. The ophthalmologists are practically unanimous in according first place to tuberculin where the eye is affected, combined, of course, with the other proper measures.

#### Discussion.

J. J. Pattee feels that the condition of eye tuberculosis is very important and believes newer treatments are getting results and thinks that there are more cases than we might expect.

F. E. Wallace says the better diagnostic methods can uncover many cases.

The critic, J. H. Woodbridge, offered many suggestions which were well received.

F. E. WALLACE, Recorder.



# Minutes of the House of Delegates of the Fifty-First Annual Meeting of the Colorado State Medical Society

Held at Pueblo, Colorado, October 4 to 7, 1921

## First Meeting of the House of Delegates, Oct. 4, 1921

The House of Delegates met at the Congress Hotel, Pueblo, Colorado, and was called to order at 8 o'clock p. m., by the President, F. R. Spencer.

The Secretary called the roll and the President announced a quorum present.

The minutes of the previous meeting were adopted as published in the October, 1920, issue of Colorado Medical.

The report of the Committee on Credentials is as follows:

### REPORT OF COMMITTEE ON CREDENTIALS.

Society.	Number of Members Dec. 31, 1920.	Delegates
Boulder .....	37	2
Chaffee .....	8	1
Delta .....	18	1
Denver .....	409	17
El Paso .....	90	4
Fremont .....	20	1
Garfield .....	15	1
Huerfano .....	9	1
Kit Carson .....	11	1
Lake .....	13	1
Larimer .....	29	2
Las Animas .....	29	2
Mesa .....	22	1
Montrose .....	11	1
Morgan .....	5	1
Northeast .....	24	1
Northwestern .....	12	1
Otero .....	22	1
Prowers .....	14	1
Pueblo .....	55	3
San Juan .....	16	1
San Luis Valley .....	27	2
Teller .....	7	1
Weld .....	32	2

Total membership Dec. 31, 1920, by which apportionments are made .....935

Total delegation ..... 50

An application for a charter from this society has been made by the Arapahoe County Medical Society and will be commented on in the Secretary's Report. The issuance of the charter is recommended.

F. B. STEPHENSON, Chairman.

On motion of Melville Black, regularly seconded, A. J. Nossaman, of San Juan County, was seated as a delegate in place of H. A. Lingenfelter, whose name had been called.

E. L. Sadler of Larimer County, was seated as alternate for P. J. McHugh.

The President then announced the appointment of the following committees:

Reference Committee on Reports of Officers—C. R. Arnold, chairman; Melville Black, T. E. Carmody.

Reference Committee on Reports of Committees—A. S. Taussig, chairman; G. A. Moleen, G. A. Boyd.

Reference Committee on Miscellaneous Business—Clay E. Giffin, chairman; C. E. Cooper, C. N. Meader.

Committee on Appropriations—W. A. Sedwick, chairman; W. A. Jayne, R. G. Smith.

The following Nominating Committee was elected—A. S. Taussig, Denver; R. E. Holmes, Canon City; W. A. Kickland, Fort Collins; T. A. Stoddard, Pueblo; D. P. Mayhew, Colorado Springs.

The Secretary, F. B. Stephenson, then presented his report, which, on motion seconded and carried, was referred to the Reference Committee on Reports of Officers.

The report is as follows:

### REPORT OF THE SECRETARY.

The Society has not taken up any new enterprise since the last annual session and the Secretary's duties have been concerned largely with clerical work and such work of an executive nature as transpired from time to time in the ordinary run of the Society's affairs.

The meeting of State Society Secretaries at Chicago, held last fall, was attended by your Secretary; the purpose of the meeting was to discuss means of advancing the interests of organized medicine. Three subjects of discussion at that meeting will bear mention at this time as suggestions for consideration by the Colorado State Medical Society. They are:

Medical Defense.

Full Time Lay Secretary.

Postgraduate Instruction.

A number of State Societies are operating a so-called Medical Defense System by which members are protected against malpractice suits. It provides legal defense in court and payment of damages if assessed; very much on the order of the usual liability insurance policy. This is said to operate satisfactorily, being cheaper for the doctor than the commercial policy, and resulting in a surplus fund.

Some eight states have full-time secretaries, in some cases a doctor and in others a lay executive with a doctor-secretary as supervisor.

I have corresponded with these various full-time secretaries to get their opinion as to the feasibility of such an arrangement for Colorado. The replies are at variance in advice.

The Secretary is not recommending any of these measures, but feels he should inform you of what others are doing, and leave it to your pleasure to consider them or not. It might be well to appoint a committee to thresh them out, and determine whether the Colorado membership is large enough to support any of them. In that case such correspondence and information as I have are at such a committee's service.

The last printing of the Constitution and By-laws was in 1917. The Secretary has been able



to secure only one of these copies. While there have been only several changes in the way of amendments, it would seem that soon there should be a reprint with corrections, mainly for the purpose of supplying additional copies. A rough estimate of expense of reprinting, obtained from a Denver printing concern is: 100 copies, \$38.00; 250 copies, \$48.00; 500 copies, \$52.00; 1,000 copies, \$67.00.

A new County Society has been organized in Arapahoe County with eight members and has made formal application for a charter. This matter came to my attention in the week just preceding this meeting. A model for Constitution and By-laws has been furnished the society and adopted by it, and it is recommended by the Committee on Credentials that you authorize your officers to issue the charter requested.

Morgan County Society, reported last year as dropped for nonpayment of dues, has been reinstated and all members placed in good standing, all 1920 dues having been paid up.

The following is a statement of membership and dues:

**Reinstated Since Last Annual Session.**

Society.	Members.	
Boulder .....	1	1920
Denver .....	6	Dues
Fremont .....	1	Paid
Garfield .....	1	
Las Animas .....	1	
Morgan .....	9	
	19	\$57.00

**Active Membership for 1921.**

Society	Members.	
Boulder .....	44	1921
Chaffee .....	8	Dues
Delta .....	19	Paid
Denver .....	441	
El Paso .....	94	
Fremont .....	19	
Garfield .....	13	
Huerfano .....	9	
Kit Carson .....	11	
Lake .....	13	
Larimer .....	29	
Las Animas .....	28	
Mesa .....	23	
Montrose .....	11	
Morgan .....	12	
Northeast Colorado..	27	
Northwestern Colo ..	9	
Otero .....	25	
Prowers .....	16	
Pueblo .....	62	
San Juan .....	14	
San Luis Valley.....	22	
Teller .....	6	
Weld .....	29	
Total .....	984	\$2,952.00

Total Receipts Remitted To Treasurer ..	\$3,009.00
Active membership 1920.....	915
Active membership 1921 .....	984
Increase .....	69
Died .....	14
Removals to other states.....	5
Resigned .....	3
Dropped or expelled.....	0

Respectfully Submitted,

F. B. STEPHENSON, Secretary.

The Treasurer, W. A. Sedwick, presented his report, which was referred to the Reference Committee on Reports of Officers.

The report is as follows:

**REPORT OF THE TREASURER.**

From September 4, 1920, to October 4, 1921.

**RECEIPTS.**

Balance on hand September 4, 1920:	
Cash in bank .....	\$2,708.42
Liberty Bond, Face Value .....	1,000.00
From Secretary, Dues, (including \$6.00 overpaid by Dr. Epler) ..	3,015.00
From Editor, Colorado Medicine:	
Gross Advertising Receipts ...	\$2,403.51
Individual subscriptions and single copy sales .....	52.70
	\$2,456.21
Interest on savings account....	\$74.17
Interest on Liberty Bond.....	63.75
Received from authors for cuts	42.56

Total of balance on hand, bonds and receipts

\$9,360.11

**DISBURSEMENTS**

**Journal Maintenance.**

Western Newspaper Union..	\$3,475.87
Western Press Clipping Co. .	48.00
W. H. Kistler, Stationery Co., envelopes .....	65.25
F. B. Stephenson, editor's salary, advertising commissions, hand delivery, incidentals and postage (13 mo.) .....	916.53
Mrs. C. B. Haynes, salary, editor's stenographer (13 mo.) .....	130.00
Kendrick Bellamy Co. ....	2.10
F. V. Cargill, contract commission advertising ...	18.00
Postage .....	25.00

\$4,680.75

**Secretary's Office.**

Secretary's clerk salary .....	\$120.00
Secretary's salary .....	200.00

320.00

**Library.**

C. R. Troth .....	\$ 90.95
D. Appleton & Co.....	7.50
P. Blakiston's Son & Co.....	9.00
F. A. Davis Co. ....	7.00
Johns Hopkins Press.....	16.50
Paul B. Hoeber .....	9.00
J. B. Lippincott Co. ....	9.00

\$148.95

**Incidentals.**

Colo Hotel Exp. Drs. Beck, Crile and Vaughan .....	\$ 79.09
O'Brien Printing Co., badges	13.50
E. O. Sigler, crating .....	2.00
Kendrick Bellamy, stationery..	4.90
Welch-Hafner Co., printing...	94.10
Carson Press Env. & Staty....	42.65
A. S. Carter, R. Stamp.....	2.50
Dr. Stephenson, incidental and printing .....	4.54

\$243.28

### Committee on Public Policy and Legislation.

F. B. Stephenson .....	\$ 22.65
McGuire Print. Co. ....	74.00
Logan Print Co. ....	2.40
Western Newspaper Union....	26.18

\$125.23

### Reporting Annual Meeting.

Carpenter and Peters, reporting annual meeting.....	\$213.39	\$ 213.39
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### Refund.

Dr. Crum Epler, refund, error	6.00	6.00
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### Programs and Postage.

The Kraft Engraving Co., programs .....	36.00	36.00
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**Grand Total .....** \$5,773.60

### ON HAND.

Liberty Bond, face value ...	\$1,000.00
In Savings Account.....	2,523.69
Balance in Commercial Acct.	62.82

**Total on Hand .....** \$3,586.51

**\$9,360.11**

Respectfully Submitted,

W. A. SEDWICK, Treasurer.

Audited and found correct:

C. F. HEGNER, Chairman.

J. J. PATTEE.

WM. H. CRISP.

Auditing Committee, Oct. 6, 1921.

The report of the Librarian was next called for and was read as to its essentials by W. A. Jayne. The report is as follows:

### REPORT OF LIBRARIAN.

**Books received through Colorado Medicine, Sept. 1920 to Sept. 1921.**

Authors.	Title.
White, W. A.—Thoughts of a Psychiatrist on the war.	
Sternberg, M. L.—George Miller Sternberg.	
American Medical Asso.—Cosmetic Nostrums.	
Boothby & Sandiford—Basal Metabolic Rate Determinations.	
Wells, H. G.—Chemical Pathology.	
McConnell, Guthrie—Manual of Pathology.	
Paddock, C. E.—Maternitas.	
Horowitz, Philip—Diabetes.	
Boyd, M. F.—Practical Preventive Medicine.	
Munson, F. M.—Hygiene of Communicable Diseases.	
Bandler, S. W.—Endocrines.	
Mayo Clinic—Collected Papers 1919.	
Practical Medicine Series—Pediatrics.	
Carman, R. D.—Roentgen Diagnosis of Diseases of the Alimentary Canal.	
Warbasse, J. P.—Surgical Treatment, vol. 3 and Index.	
Keen, W. W.—Surgery, Its Principles and Practice, vols. 7-8 and Index.	
Orsborne, O. T.—Principles of Therapeutics.	
Moorhead, J. J.—Traumatic Surgery.	
Bergey, D. H.—Principles of Hygiene.	
Stengel & Fox—Textbook of Pathology.	
Moynihan, Sir Berkeley—Essays on Surgical Subjects.	
Tousey, Sinclair—Medical Electricity.	
Dreyer & Hanson—Assessment of Physical Fitness	
Paterson, Marcus—Shibboleths of Tuberculosis.	

**Books purchased for the Medical Library from the fund allowed by the State Society, Sept. 1920-Sept. 1921.**

Authors.	Title.
Hazen, H. H.—Syphilis .....	\$ 6.30
Osler & McCrea—Principles and Practice of Medicine .....	9.00

Gradwohl & Blauvis—Newer Methods of Blood and Urine Chemistry.....	3.50
Schaeffer, J. P.—Nose, Paranasal Sinuses..	9.00
Sajous, C. E. de M.—Analytic Cyclopedia of Practical Medicine, vol. 10.....	7.00
Hertzler, A. E.—Clinical Surgery By Case Histories, 2 vols. ....	14.40
Phillips, W. C.—Diseases of the Ear, Nose and Throat .....	6.30
Jones, Sir Robert ed.—Orthopaedic Surgery of Injuries, 2 vols.....	16.20
Ochsner, A. J., ed.—Surgical Diagnosis and Treatment, 2 vols.....	9.00
Welch, W. H.—Papers and Addresses, 3 vols.	16.50
Anspach, B. M.—Gynecology.....	9.00
Deaver & Ashhurst—Surgery of the Upper Abdomen .....	12.60
Binney, J. F.—Manual of Operative Surgery	10.80
Much, Hans—Tuberculosis of Children.....	2.25
Sheffield, H. B.—Diseases of Children.....	8.10
Baetjer & Waters—Injuries and Diseases of the Bones and Joints.....	9.00

**Total .....** \$148.95

Volumes in Library Sept. 1, 1920	1073
Volumes in Library Sept. 1, 1921	1122
Added during year .....	48
Purchased .....	21
Gift, Colorado Medicine .....	27
Appropriation .....	150.00
Expenditures .....	148.95

**Balance .....** \$ 1.05

The use of the library by out-of-town members has been considerable during the past year, showing that the scope of its usefulness has not been merely local, but is serving the needs of many readers throughout the state.

Your Committee respectfully recommends that the usual appropriation of \$150.00 be made for the library for the coming year.

Respectfully submitted,

A. J. MARKLEY, Chairman.

W. W. Crook, chairman of the **Board of Councillors**, announced that he had no report to make. G. A. Moleen, chairman of the **Committee on Scientific Work**, submitted the following verbal report:

Your Committee has no report to offer, other than the finished product, which is the result of its labors throughout the year. I trust that will stand as the report.

The report of the Committee on **Public Policy and Legislation** was read by D. A. Strickler, and is as follows:

### REPORT OF COMMITTEE ON PUBLIC POLICY AND LEGISLATION.

Your Committee on Public Policy and Legislation beg leave to report that many measures in which the medical profession is interested have been considered by the people and by their representatives since our last meeting. In the general election of November 2, 1920, the first bill ever initiated by the medical profession designated "An Act to Appropriate Money for the Purchase of a Building Site and the Erection Thereon of a Psychopathic Hospital and Laboratory, and to Furnish and Equip the Same", was carried by a vote of 155,049 for, to 50,295 against. This carried an appropriation of \$350,000 which will be available during the year 1922. This was a wonderful vote. It indicates something of what the medical profession can do when interested in a cause.

Another initiated measure in which the medical profession was deeply interested, though not



the prime mover, was an **"Amendment to Section 11 of Article 10, of the State Constitution Providing that the General Assembly May Authorize an Additional Levy, Never to Exceed One Mill, for the Support and Betterment of the State Educational Institutions"**. This measure carried by the gratifying vote of 160,268 for, to 52,324 against.

A third measure initiated by the **Chiropractors** providing for a **State Board of Chiropractic Examiners** was defeated by a vote of 84,286 for to 109,385 against.

In the Twenty-Third General Assembly there were introduced in the Senate thirteen bills which were referred to the Committee on Medical Affairs, Dr. W. W. King, chairman; in the House seventeen which were referred to the Committee on Medical Affairs and Public Health, Dr. Minnie C. T. Love, chairman; and one House bill 89 by Mr. Pughe, providing funds for a **Department of Medicine in the University**, referred to Committee on Appropriations.

Of these, House Bill 89 was by far the most important, as it assured a medical department in the University of Colorado which will be a great credit to the medical profession, and an honor to the State of Colorado. It called for an appropriation of \$600,000 by the State which was passed by the House, later the Senate, and approved by the Governor. The history of other sources of funds to swell the amount to \$1,500,000 need not be dwelt upon at this time.

House Bill 20, by Mr. Daily, and Senate Bill 23, by Dr. King were duplicates entitled **"A Bill for an Act to Protect the Public by Regulating the Practice of the Healing Art in the State of Colorado"**. This was designed to increase the standards in preliminary education required of applicants for licensure; to require graduation in recognized schools; to require examinations of **chiropractors**; to facilitate the administration of the act and to make the act generally more effective. Through most excellent work done by Senator W. W. King, with such assistance as your Committee could render, it passed the Senate, but it was defeated in the House by a lobby, which in its character and vindictiveness can be little comprehended by the members of the medical profession who did not personally witness it.

Senate bill 191 by Burke, House bill 228 by Sackman, were duplicates of a **"Bill for an Act Providing for the Creation, Establishment and Appointment of a Colorado State Board of Chiropractic Examiners, etc."** This bill was defeated in the House and never reached the Senate. The defeat in the House was the result of skillful generalship on the part of its opponents in the House rather than to a successful campaign on the part of your Committee.

Senate bill 250 by Stephen, House bill 309 by Rotruck, were duplicates designated, **"A Bill for an Act to Provide that no Vaccination, Inoculation or other Medical Treatment shall be Required for Admission, Attendance, or Employment in any Public or Private School, College, Institution or Office."** This bill passed the Senate but was defeated in the House.

Senate bill 100 by Senator Fairfield, **"To Create a State Department of Health, New Divisions with Directors, etc."** following the general lines adopted in New York, Massachusetts and other states, failed to get out from the Committee on Medical Affairs. The long appropriation bill, however, carried \$10,000 for establishing a laboratory and increased other appropriations for general use by the Board of Public Health to a total of a little over \$100,000 for the biennial period.

House bill No. 9, by Dr. Love, to establish a state hospital and training school for women suffering from venereal disease or drug habit, authorizing the purchase or leasing of land and buildings and equipment, providing for commitment, etc., was defeated, but the long appropriation bill carried \$25,000 for maintenance of the State Detention Home for Women, which was created by the legislature in 1919. This home is to take care of venereally infected women.

House bill 299, Godsman and Love, to create a department of venereal diseases in the State Board of Health, known as the American Legion bill, and designed to increase the efficiency of the division of venereal diseases in the State Board of Health, was passed, carrying an appropriation of \$20,000 a year instead of \$8,500 as under the old provision.

Four bills which did not get out from the Committee on Medical Affairs and which may be of passing interest at least, were:

Senate bill 248 Stephen, House bill 311 Rotruck, entitled, **"A Bill for an Act to Require all Medical Prescriptions or Formulas to be written in English, and to Provide Penalties for the Violation of this Act, and to Repeal all Acts and Parts of Acts in Conflict Herewith."**

Senate bill 249 Stephen, entitled, **"A Bill for an Act to Prevent Public Officials, Commissions or Boards, or their Agents or Servants, in Exercising Authority under Laws or Ordinances, or the Enforcement of such Laws or Ordinances, from Interfering with, Hindering or Preventing the free and Unrestricted choice by any Person, or any Practitioner, Agency, Remedy, Instrumentality, Means or System, when so chosen. But not to Remove or Modify any Prohibitions or Restrictions as to Alcohol or Other Drugs, or for the Creation and Maintenance of Sanitary Environment, and to Provide Penalties for the Violation of this Act, and to repeal all Acts and Parts of Acts in Conflict herewith."**

(These two bills together with Senate bill 250 on anti-vaccination, introduced by Senator John B. Stephen, (First) Denver, residence 2028 Ogden street, may serve to show those interested how much he loves the medical profession and how strongly he supports public health measures. John F. Rotruck, member of the House from Denver shows a like love in House Bills 309 and 311.)

House bill 446 by Mr. Lambert, **"A Bill for an Act to Regulate the Practice of Operative Surgery by the use of a Knife, or any Surgical Instrument, and to provide Punishment for a Violation of this Act."**

House bill 62 by Dr. Love (by request), **"A Bill for an Act Entitled an Act to Regulate the Practice of Cosmetic Therapy."**

You will note that it has been a rather strenuous year in legislation and legislative efforts. On the whole, we feel that we have been fairly successful. The need of constant vigilance is shown in the character of some of the bills introduced, note of which has been made in this report.

Anti-vaccination, anti-vivisection and duplication of licensing boards with lowered standards are the three problems which we will be called upon to meet within the next two years. It behooves us to marshal our forces if public health is to be conserved as it should be by an intelligent people. This means not only the selection of a strong and active committee on public policy and legislation, but as well the earnest support of



every member of the profession who is interested in the conservation of human life. Both individual effort and group work should be used to the limit if sentimentalism and fanaticism are to be successfully checked.

All of which is respectfully submitted.

DAVID A. STRICKLER, Chairman.  
A. C. MAGRUDER,  
T. E. CARMODY,  
HUBERT WORK,  
O. M. SHERE,  
C. E. TENNANT,  
O. M. GILBERT.

Melville Black then moved that in referring this report to the Reference Committee, the house extend its hearty thanks to the Committee for the most excellent work accomplished in the Society's behalf.

The motion was seconded and unanimously carried, and the report was referred to the Reference Committee on Reports of Committees.

Dr. Black then submitted the report of the Publication Committee.

The report is as follows:

#### REPORT OF PUBLICATION COMMITTEE.

The twelve numbers of Colorado Medicine issued since the 1920 annual session have included 186 pages of advertising and 208 pages of reading matter, the latter consisting of 22 state papers, 21 other original articles, 42 pages of Medical Coloradoana, the usual run of editorials, news notes, constituent society reports and book reviews, besides a complete list of members of the Colorado State Medical Society and the proceedings of the 1920 meeting of the House of Delegates and the general meetings. Forty-one books and periodicals were reviewed and deposited with the State Society library.

No marked change in the policy of the Journal has been made, but somewhat more attention has been paid in the editorials to current matters of interest to the profession aside from scientific subjects.

Late in the fall of last year it was seen that some curtailment of expense of the journal would have to be made to avoid exceeding the available publication fund. The Committee did not feel that the amount of reading matter should be reduced, and, after obtaining estimates from various printing concerns in Denver and finding all of them higher than the firm then doing the printing, resorted to the expedient of using smaller type throughout, which is estimated to have saved \$50.00 a month since January 1, 1921. The journal is not so attractive in appearance nor so easy to read. The question of resuming the previous style and providing for the additional expense may be a matter for consideration by the House.

It will be seen that even now the cost of twelve issues barely comes within the available funds and there is a deficit chargeable to the previous year.

It has been the policy of the Journal to require at least part payment on the part of the essayist for cuts. This policy is open to question, since the item of expense is not an important one and we believe that our members would be better satisfied if no charge were made for cuts unless the number used in any one paper was very large.

The financial statement for the year follows:

Editor's salary .....	\$ 300.00
Commissions on advertising .....	559.93
Editor's assistant .....	120.00
Printing the Journal .....	3,176.21

Postage, stationery, Denver hand delivery, press clippings and incidentals..	188.96
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Total expenditures .....	\$4,345.10
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Receipts from advertising and other sources as shown on Treasurer's report .....	\$2,498.77
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Two dollars out of each paid membership as provided by by-laws.....	2,006.00
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\$4,504.77

Net saving on 1920-21, 12 months, \$159.67	
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Additional expenditure chargeable to previous year:	
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September 1920 issue .....	\$ 279.66
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Editor's salary .....	25.00
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Editor's Assistant .....	10.00
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\$ 314.66

Saving this year .....	\$ 159.67
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Deficit .....	\$ 154.99
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MELVILLE BLACK, Chairman.

GEO. A. MOLEEN,

PHILIP HILLKOWITZ.

There being no one present to report on behalf of the Committee on Necrology, the report was passed, to be submitted at a later meeting.

The report of the Committee on Medical Education was read by Dr. Meader, and was referred to the Reference Committee on Reports of Committees.

The report is as follows:

#### REPORT OF COMMITTEE ON MEDICAL EDUCATION.

Viewed nationally, Medical education is now in the midst of the period of forward movement and rapid development initiated long before the war, but greatly stimulated by it. There is everywhere a heightened interest in the technique of medical education which manifests itself in the active discussion and testing of full time versus part time teaching of clinical subjects and is apparent also in the many modifications of the curriculum now on trial. Improvements in physical plant and equipment are keeping step with this active study and testing of technique and indeed frequently precede it. The concept of a general teaching hospital closely integrated with the medical school in space, in administration and personnel may be said to have become standard. Upon these lines the splendid new institution of the University of Illinois is being built and the plans for the great new groups at the University of Chicago and at Vanderbilt are similar. These large projects do not stand alone, however, similar plans on a smaller scale are afoot in many schools and the medical student of 1930 will pursue his studies in surroundings very different from those of today and vastly in advance of even as recent a period as 1910.

Indeed the medical student himself demands serious consideration. The number of applicants for enrollment since the war has shown a steady increase with an astounding upward bound this present year. It is probably well within the truth to say that there is no school of standing in this country in which the number of applicants has not been greater than the school could conscientiously care for; there are relatively few first-class schools from which qualified students have not been turned away, and in some schools the rejections number two and even three times the upper limit set for the entering class! It is evident that we are face to face with a situation in which medical educators have the opportunity of



selecting the best material among a surplus offered for the course in medicine. Such a situation foreshadows potentialities for improvement in medical research which are boundless. One point must be clearly noted, however. Unless state university schools have the same untrammelled right of selection as that exercised by privately endowed schools, we shall very shortly create a situation in which the cream of our prospective physicians will be taken by the latter while to the State University school will fall the task of toiling with the mediocre because it must take whom-so-ever can meet its minimum requirements.

It is perhaps unnecessary to recount in detail the progress in Colorado. This Society through its constituent societies and individual members has in the past year given most important help to the advancement of medical education. Since its last meeting the program for the school of medicine adopted by the Regents has met with the very substantial financial approval of the Rockefeller Foundation. It is not necessary to recall to members of this Society that the program was also approved by the last legislature since so many of its members played a very active part in securing that result, as well as in securing the Psychopathic Hospital which will be an important part of the educational group. To complete the total necessary before actual construction can begin there must now be raised \$200,000 by private subscription. In the face of financial depression and disastrous floods the Regents view this necessity with regret but with confidence that Colorado will not let slip the opportunity almost within its grasp. Plans are laid for the campaign to secure this balance and a start will soon be made. Meantime the University is carrying on to the best of its ability with the facilities available. The school has gained more students than it has lost in the upper classes, and has an entering class of forty-two, fourteen more than last year and far more than can well be handled.

In conclusion your Committee wishes to recommend that the House of Delegates formally indorse the campaign by the University to raise the additional \$200,000 and that the House of Delegates further recommend to the State Society that its constituent societies and members be urged to do all possible to further the success of this campaign.

Respectfully submitted,  
CHAS. N. MEADER, Chairman.  
O. M. GILBERT,  
ROBERT LEVY.

Crum Epler then submitted a verbal report of the **Committee on Arrangements**, stating that the report was practically covered on the last printed page of the program.

It was thereupon moved by Melville Black that in view of the overwhelming disaster which Pueblo had recently sustained, the Committee on Arrangements be given a vote of thanks and appreciation. The motion being seconded and put to a rising vote was carried unanimously.

Crum Epler then announced that the **Report of the Committee on Social Medicine** would be submitted at a later meeting of the House of Delegates.

There being no one present to report on behalf of the **Committee on Co-operation with the State Pharmaceutical Association** the report was passed.

The President then called for the report of the **Committee on Medical Literature**.

Dr. Jayne, preliminary to reading the report, made the following explanatory remarks:

Dr. Sewall is absent, and he asked me to read his report. I want to call the attention of the members of the House of Delegates to the fact that this is the Fiftieth Anniversary of the inauguration of this Society, and this report contemplates the publication of certain material, not as to the form, but as to the matter, that has been appearing in Colorado Medicine. I might say that the matter of the publication of this proposed volume has occupied the very earnest attention of this Committee, and we feel that great credit would attach to this state if the Society would publish such a volume which should contain under the head of each man the contributions he has made to medical science, not only in our State Medical Journals, but throughout the United States. I might say that Dr. Spivak has been very diligent in collecting all this material, and it has been gathered by him, or persons he has employed, at very considerable expense to himself. I have here a letter from Dr. Fielding H. Garrison, of the Surgeon General's Library in Washington, in which he comments upon this work and lauds it very highly.

It is a question as to how this publication can be financed and carried out. It would perhaps require a volume of about 135 pages, and I have had an estimate from the printers of Denver, with a tentative figure for 1,000 copies of such a work, bound in cloth, of about \$1,500. A less number would cost correspondingly less. There have been many suggestions made as to how this can be best financed. The Society perhaps would have to stand back of it, or guarantee it, or perhaps we would have to go among the members of the Society and get a personal guarantee by subscription to cover this expense. Then the volume could be sold to those men who desire to purchase it, and I believe that all the members of the State Society would be glad to have such a monumental work, showing the scientific publications which have been made during the fifty years of the existence of this Society. Just how this should be best conducted, remains for the Committee to determine. I am in hopes the President will appoint a committee to consider the matter and bring in a report, but this Committee earnestly wishes to have the House of Delegates consider the question and take it up tentatively so that it shall be made effective, and to the end that this volume be published and distributed among all members at so much per; and that will, of course, return a large proportion, if not all the sum which is required to publish it.

The report of the Committee on Medical Literature is as follows:

#### REPORT OF THE COMMITTEE ON MEDICAL LITERATURE.

The Committee desires to bring to your attention an unique and outstanding piece of work conceived and accomplished wholly through the initiative and devotion of one of its members, Dr. C. D. Spivak.

This work consists in the publication in Colorado Medicine during 1919 to 1921 a full bibliography of medical contributions by Colorado physicians and surgeons, beginning with the earliest territorial days and continuing to the beginning of 1921, as far as these contributions have appeared in the following periodicals, namely, Colorado Medicine, Journal of the American Medical Association, Western Medical Times, Medical News, Climatologist, Colorado Climatologist, Colorado Medical Journal.

There remain in manuscript, in Dr. Spivak's possession, similar unpublished bibliographies of medical literature emanating from the profession



in Colorado, as published in the following periodicals, namely, The N. Y. Medical Journal, Transactions of the Territorial and State Medical Society, Annals of Ophthalmology, New York Medical Journal, Annals of Surgery, American Journal of Medical Science, American Journal of Obstetrics, Surgery Gynecology and Obstetrics, etc.

This material, if published, would occupy approximately one hundred (100) pages of Colorado Medicine. Thus far the published bibliographies have occupied about fifty (50) pages of Colorado Medicine.

It is recommended by your committee that the bibliographies now in manuscript be published in Colorado Medicine as rapidly as possible during this and the coming year, and that the whole bibliography, alphabetically arranged by authors and chronologically by titles, be published in book form as a Jubilee Volume in celebration of the Fiftieth Anniversary of the foundation of the Colorado State Medical Society.

HENRY SEWALL, Chairman,  
W. A. JAYNE,  
C. D. SPIVAK.

Dr. Jayne followed the reading of the report with a motion that a committee of three be appointed by the chair, to report later to the House of Delegates. After debate the motion being seconded and put to a vote was carried.

A. C. Magruder read a report of a special committee on Health Problems and Education, appointed by the President to co-operate with the Colorado State Teachers' Association, which was referred to the Reference Committee on Reports of Committees.

The report is as follows:

#### **REPORT OF COMMITTEE ON HEALTH PROBLEMS IN EDUCATION.**

Your Committee on Health Problems in Education was appointed at the request of the similar Committee of the American Medical Association. The Committee of the State Teachers' Association, with which your committee was directed to confer, was never appointed, and therefore your committee was able to perform only part of its duty. One meeting has been held, at which three of the members were present, and at this meeting it was agreed that in view of the fact that last winter the attention of all persons interested in public health, as well as the attention of the Legislature, was centered on the affairs of the State University Medical School and the State Hospital, your committee should recommend no legislation program. Each member was provided with a copy of the letter from the Committee of the American Medical Association, and was asked to give the chairman his views; these are incorporated in this report.

It is the belief of your committee that there is no present necessity and no present value in attempting to influence legislation concerning Health matters in Education. We believe, on the contrary, that the paramount duty of the State Medical Society in these matters, and, even to a greater degree, that of the County Medical Societies, is so to influence public opinion as to make possible the proper enforcement of such laws as are now on the statute books, and to render it practicable, in the future, to have these laws amended as may be most expedient, and to have such others passed as may be deemed desirable, the expediency and desirability being based on their possibility of enforcement. We believe that unless there is a disposition on the part of the public to consider health matters seriously, and on the part of legislative bodies to make

adequate money provision, there is no use, indeed we believe there is harm, in attempting to pass laws relating to Public Health in the Schools. For example, the well-phrased regulation of the State Board of Health concerning the physical and mental examination of every school child prior to entry into class cannot be carried out adequately, or in most places, at all, because there are no means for the payment of the workers. Similarly, the regulations concerning the proper amount of floor space and air capacity are useless because there is, in nearly all of the school districts, not enough money to build school houses of proper capacity. We are, then, forced to recommend that the activities of the State Medical Society and the County Medical Societies be limited for the present to the slow work of educating the public.

It is recommended that the County Medical Societies be requested to appoint committees on Public Health, these committees to be made up, as far as may be practicable, of members from different towns or cities, in order that they may have opportunity to observe conditions, make recommendations, and aid the local health officers in as many different communities as possible. It is recommended further that the Societies take action, requesting the School Boards and other authorities that their representatives be called into consultation in all matters pertaining to Public Health in the Schools, and that they offer their advices and services to all civic bodies in these same matters.

It is further recommended that the County Medical Societies be requested to take the necessary steps to co-operate with the civic bodies also in the way of furnishing advice, examinations, and when called on by the proper charitable bodies, treatment, to school children. A properly managed diagnostic clinic, co-operating with the Child Welfare Commission, the Red Cross, and the local Charities Commissions, is recommended.

It is further recommended that this State Society take action, and that it request the County Societies to take action, on the matter of the examination of school children, both prior to their entry into class and after their absence from class. It is the belief of your committee that the greatest source of temporary illness and of permanent damage to health lies in the respiratory diseases, including measles. It is our opinion that there is a process of gradual immunization to all these diseases among the school children in all our larger communities, that this process is carried on by the repeated infection of children from each other, and that while this process is, apparently, not only inevitable but in a sense desirable, it should be so controlled as to be as inexpensive to the children as possible. With this in mind, it is recommended that the County Medical Societies be requested to take every possible step to educate the parents and teachers in the recent well sustained ideas of the medical profession regarding immunity, infection and carriers. Every effort should be made to induce the teachers to exclude from school all children who have coughs, colds, or sore throats, or who seem to have fever. These children should be readmitted only on certificate of a properly qualified health officer, who should take the temperature in each case, examine the nose and throat, and make a general inspection of the child. Records should be made, and facilities thus afforded for follow-up work on the part of public health nurses. It is believed that in this way all the children who need care will be placed in a position to have it, and it is further believed that to a very great extent this method of handling convalescent children will en-



able the health officers to exclude from school not only nearly all the worse cases of respiratory disease, but a very large percentage of incipient measles, scarlet fever and diphtheria. While no one would claim that in this way it will be possible to eliminate all contagion, or even nearly all of it, yet it is our belief that it will thus be possible to keep away from school and thus away from contact with large numbers of other children most of the more virulent cases of respiratory disease, and that these cases will not come back until the greater degree of the virulence of the organisms has disappeared. It is believed by your committee that the practice of allowing family physicians to supply certificates of freedom from disease is a faulty one, and should be discouraged; it is not thought that our members will desire this privilege which will, in many instances, become an annoying duty. It is thought that the proper carrying out of the plan recommended will, in most of the school districts, be no more than a matter of inducing the school boards or city councils to provide funds enough to pay for the health officers and community nurses.

Your Committee recommends that the State Educational Association be pressingly invited to appoint a committee, with which your next year's committee may confer. The annual meeting of the Educational Association will soon occur, and the Secretary has expressed his assurance of hearty co-operation on the part of the organization.

Your Committee now begs to be relieved.

JOHN R. BARBER, Chairman.

Edward Jackson: Mr. President, in the report of the Committee on Public Policy and Legislation there was a slight forecast of what problems would be presented to us in the next year, or the next two years. There were three things: the efforts to get separate boards of medical examiners by certain of these graduates of various claimed-to-be schools of medicine, the efforts to obtain anti-vaccination legislation; and the efforts to obtain anti-vivisection legislation, which would prevent vivisection in this state. The work of that committee in the past has been very largely the defeating of schemes to get separate boards of medical examiners. The issue of vaccination, or non-vaccination, of school children has been before the State Society previously, and before the profession in this state, but it is likely, from what I can learn, that in the next year the issue of anti-vivisection will become more important and more urgent for our consideration and our action than either of these others. There has been made recently a concerted effort to get anti-vivisection legislation in the District of Columbia, which was fortunately defeated. Some effort has been made in the state of California which, by very efficient and excellent work, has been defeated also. Now, we are informed that the next effort of the National Association for Anti-Vivisection is likely to be made in Colorado, and that steps are already being taken. It is still too early to go before the public in any way, but before the next meeting of the State Medical Society, the next annual meeting, it is very probable that we will want to go before the public on that issue, and it is certain we will want an efficient organization to accomplish that purpose. I, therefore, move that the Reference Committee on Reports of Committees, in reporting upon the Committee on Public Policy and Legislation, should make some definite recommendations as to the policy of this Society, with reference to any legislation looking to the

prevention of vivisection. Of course, it is not necessary to talk about the importance of vivisection, or anti-vivisection legislation, to this body but I would make this motion of special instruction to the Reference Committee on Reports of Committees.

The motion was seconded.

Dr. Strickler: I would like to have Dr. Jackson include in his proposition that we take in anti-vaccination—I think this committee should make some recommendation covering anti-vaccination.

The amendment was accepted and the amended motion put and carried.

The meeting adjourned until 8 o'clock a. m., October 5th, 1921.

## Second Meeting of the House of Delegates, Oct. 5, 1921

The House of Delegates met at 8 o'clock a. m. on the date above stated, pursuant to adjournment, and was called to order by the President.

The Secretary called the roll and the President announced a quorum present.

The reading of the minutes of the previous meeting was dispensed with.

Dr. Black then made the following report of the Committee on Reports of Officers:

### REPORT OF REFERENCE COMMITTEE ON REPORTS OF OFFICERS.

Upon the **Secretary's Report**: Because it would involve raising the dues of the State Society we would recommend that action on the question of medical defense be deferred for the present. We have not entered into the reasons why in this matter, but the thing has been threshed out at several meetings of the Society, and at one time we had a special committee appointed and a great deal of work was done at that time. It was found inexpedient with our Society, with its present membership, to attempt it, for the reason that medical defense only in the way of legal defense, could be offered by our Society, and inasmuch as a large proportion of our men who would probably be most interested in the question of defense would have to carry their old line policies just the same in order to get indemnity, and inasmuch as it would also involve raising the dues of the State Society, which would probably be prohibitive, or at least result in a considerable reduction, we felt with our membership that it was inexpedient to go into it, and the same reason obtains now as then.

We recommend that one thousand copies of the constitution and by-laws of our society be published, which the Secretary estimates will cost \$67.00.

We would recommend that the Arapahoe County Medical Society be granted a charter.

We have examined the **Report of the Treasurer** and would commend it for its clearness and accuracy.

We would recommend the appropriation of \$150 for the library fund, as advocated by the **Librarian** in his report.

C. R. ARNOLD,  
MELVILLE BLACK,  
T. E. CARMODY.

On motion of Dr. Jayne, duly seconded, the report was approved and adopted.

There being no one present to report for the Reference Committee on Reports of Committees, the report was passed for the present.

The report of the **Reference Committee on Miscellaneous Business** was also passed.

The President then announced the appointment of the following **Special Committee on Publication of a Jubilee Volume**, W. A. Jayne, Chairman; Hubert Work, Edward Jackson.

The meeting adjourned until 8:30 o'clock a. m. October 6th, 1921.

### Third Meeting of the House of Delegates, Oct. 6, 1921

The House of Delegates met at 8:30 o'clock a. m., pursuant to adjournment, and was called to order by the President.

The Secretary announced that there was a quorum present.

The Secretary then read the abridged minutes of the previous two meetings.

The minutes were adopted as corrected on suggestions by Drs. Jayne and Black.

Dr. Taussig then submitted the following report of the Nominating Committee:

#### REPORT OF COMMITTEE ON NOMINATIONS.

Your Committee begs leave to make the following report to the House of Delegates:

For President, Crum Epler, Pueblo.

First Vice President, Oliver Lyons, Denver.

Second Vice President, E. L. Sadler, Ft. Collins.

Third Vice President, L. T. Richie, Trinidad.

Fourth Vice President, W. T. Little, Cañon City.

Councillor Fourth District, W. W. Crook, Glenwood Springs.

Delegate to American Medical Association, L. H. McKinnie, Colorado Springs.

Alternate, J. B. Hartwell, Colorado Springs.

Delegate to American Medical Association, W. A. Jayne, Denver.

(To fill unexpired term of J. N. Hall, resigned)

Member Publication Committee, T. E. Carmody, Denver.

Meeting Place, 1922, Colorado Springs.

The selection of a meeting place brings to mind the question of entertainment, and this committee wishes to recommend a resolution bearing on that phase of the annual meeting, viz: Be it resolved by the House of Delegates: That in the future the entertainment of the State Society at any place of meeting shall not devolve upon the resident members of the entertaining city, but consist of a single banquet, expense of plates to be borne by individual members attending.

Respectfully submitted,

A. S. TAUSSIG, Chairman.

D. P. MAYHEW,

T. A. STODDARD,

W. A. KICKLAND,

R. E. HOLMES.

(The question raised by this proposed resolution was dealt with at the last meeting of the House of Delegates, October 7.—Ed.)

W. A. Jayne then presented a report of the Committee on Publication of a Jubilee Volume, as follows:

#### REPORT OF SPECIAL COMMITTEE ON JUBILEE VOLUME.

The Committee on Publication of a Jubilee Volume recommends the appropriation of \$750.00 to guarantee the expense of this publication and cover any deficit to this account.

The Committee recommends that a further guarantee fund of \$750.00 be raised by private subscription; the surplus amount of which, over

that needed for publication, to be prorated back to the subscribers.

Respectfully submitted,  
W. A. JAYNE, Chairman,  
EDWARD JACKSON,  
HUBERT WORK.

Following his report, Dr. Jayne again explained the purpose of the volume and it was brought out in the subsequent debate that the intention was that the subscribers should be the first to benefit from any refund available from sales of the volume, and that, when they were paid in full any further surplus receipts above expenses should go to the treasury of the State Society; and further that enough volumes would be issued to supply libraries in the various centers of learning throughout the world.

Dr. Taussig expressed the opinion that the whole matter should be referred to the constituent societies for action.

Dr. Black considered that it was a matter for the House of Delegates to decide.

Dr. Jackson concurred in Dr. Black's view, as did also Dr. Hubert Work.

Dr. Jayne having moved that the report of his committee be approved and adopted, the motion was seconded, put to a vote and carried.

President Smith thereupon subscribed \$100, which was met by an equal subscription each from Dr. Hubert Work and Dr. Stoddard.

Dr. Sedwick then presented the report of the Committee on Appropriations.

The report is as follows:

#### REPORT OF COMMITTEE ON APPROPRIATIONS.

The Committee on Appropriations recommends the appropriation of the following sums from its treasury for the expenses of the coming year:

Publication Colorado Medicine .....	\$3,500.00
Editor's salary .....	300.00
Postage .....	25.00
Editor's clerk .....	120.00
Library .....	150.00
Publication of Jubilee Volume.....	750.00
Incidentals and printing .....	200.00
Programs and postage .....	50.00
Committee on Public Policy and Legislation .....	200.00
Reporter, annual meeting.....	200.00
Secretary's salary .....	200.00
Secretary's clerk .....	120.00

Total .....\$5,815.00

W. A. SEDWICK,

W. A. JAYNE.

In explanation of the appropriation for Colorado Medicine, Dr. Jayne explained that the sum appropriated was to cover and augment the usual \$2.00 per capita allowed by the by-laws.

On motion, made and seconded, the report of the Appropriations Committee was adopted.

Dr. Taussig then submitted the report of the Reference Committee on Reports of Committees.

On motion made, seconded and carried, the report was approved and adopted.

The report is as follows:

#### REPORT OF REFERENCE COMMITTEE ON REPORTS OF COMMITTEES.

**Report of the Committee on Medical Education:** The recommendations of this committee are endorsed.

**Report of the Committee on Health Problems in Education:** Insofar as no committee has been appointed by the State Teachers' Association, we recommend that our Committee on Public Policy



and Legislation be instructed to use every effort to have such a committee appointed. Furthermore that the Committee on Public Policy and Legislation endeavor to carry out the recommendations in this report. Also that the committee reporting be relieved as requested.

**Report of the Committee on Publication:** We recommend that the committee be given full authority to deal with the questions of the use of larger type and the payment by the essayist for cuts. Considering the obstacles that have confronted the committee we feel that the committee should be complimented in that they were able to keep the deficit down to \$154.99. We recommend that the deficit be made up from the general funds so that the publication committee may start their year's work with a clean slate.

**Report of the Committee on Public Policy and Legislation:** We recommend that the House of Delegates adopt the following resolution:

Resolved, That should an emergency calling for such action arise the President of this society is authorized to appoint a committee of five or more to represent the Colorado State Medical Society and to co-operate with the committee on public policy and legislation and any other organizations as may be necessary in opposing any legislation that is likely to interfere with the proper enforcement of vaccination, or to hamper scientific biologic and medical research. Resolved further; That the trustees of this society are authorized, if in their judgment such action is necessary, to place at the disposal of such committee, funds of the society, not to exceed two hundred dollars; and that all officers of this society are instructed to give such assistance as may be practicable to that committee.

A. S. TAUSSIG, Chairman.  
GEO. A. MOLEEN,  
E. T. BOYD.

The President then called for the reports of the **Committees on Social Medicine** and the report of the **Committee on Co-operation With the State Pharmaceutical Association**. No reports were received.

#### COMMITTEE ON JUBILEE VOLUME RETAINED.

W. N. Beggs moved concerning the bibliography to be published, that the committee as appointed be continued to carry out this work.

The motion being regularly seconded and put to a vote was carried.

Adjournment was taken until 9 o'clock a. m. Friday, October 7th, 1921.

### Fourth Meeting of the House of Delegates. Oct. 7, 1921

The House of Delegates met at 8 o'clock a. m., pursuant to adjournment, and was called to order by the President.

The calling of the roll was dispensed with, and the President announced a quorum present.

The minutes of the previous meeting were read and approved.

The President thereupon announced that the first order of business was the election of officers.

The President further announced, in response to a request made by Melville Black for a ruling, that nominations could be made from the floor at any time before election, and as the election to each office came up.

#### ELECTION OF OFFICERS.

On motion made, seconded and carried, the nominations were closed for the following officers,

and the Secretary instructed to cast the ballot for such officers:

**President,** Crum Epler, Pueblo.

**First Vice President,** Oliver Lyons, Denver.

**Second Vice President,** E. L. Sadler, Ft. Collins.

**Third Vice President,** L. T. Richie, Trinidad.

**Fourth Vice President,** W. T. Little, Cañon City.

**Councillor, Fourth District,** W. W. Crook, Glenwood Springs.

**Delegate to American Medical Association,** L. H. McKinnie, Colorado Springs.

**Alternate,** J. B. Hartwell, Colorado Springs.

On motion of Melville Black, regularly seconded, the resignation of J. N. Hall, as senior delegate to the American Medical Association was accepted.

W. A. Jayne was then nominated to fill the unexpired term of J. N. Hall, as **Delegate to the American Medical Association**, and on motion made, seconded and carried, the nominations were closed and the Secretary instructed to cast the ballot for Dr. Jayne.

Edward Jackson then placed in nomination William H. Crisp, as member of the Publication Committee.

On motion of Dr. Sedwick, seconded by Dr. Black the nominations were closed. There being two nominees the President announced the appointment of Drs. Mayhew and McKinnie as tellers.

The tellers announced the election by ballot of Dr. Crisp as **member of the Publication Committee**.

Dr. Espey moved the adoption of the recommendation of the Nominating Committee, that Colorado Springs be the next meeting place of the Society. The motion being seconded by Dr. Sedwick and put to a vote by the President, was carried.

There being no member of the **Auditing Committee** present, Secretary Stephenson submitted a report on behalf of that committee, stating that the accounts of the Treasurer had been audited and found to be correct, and that the Auditing Committee's signatures were attached thereto.

On motion of Melville Black, duly seconded, the report of the Auditing Committee was approved.

Dr. Black then rose to a question of personal privilege and addressed the House of Delegates with reference to the annual dinner of the Society, stating in substance, that the cost of such dinner should be paid for by the individual members attending.

The subject was then discussed at length by Drs. Edson, Levy, Jackson, Gillespie, Chipman, Boyd, McKinnie and President Smith.

Dr. Black then submitted the following resolution which was seconded by Edward Jackson.

#### OFFICIAL ANNUAL BANQUET.

**BE IT RESOLVED,** By the House of Delegates that in the future the entertainment of the State Society, so far as an annual banquet is concerned, shall not devolve upon the resident members of the entertaining city, but that there shall be an annual official subscription banquet, arranged by a special banquet committee to be appointed by the President.

Dr. Black stated that this was offered as a substitute for the resolution submitted by the nominating committee.

The resolution being put to a vote by the President, was carried.

Dr. Black then made a motion to the effect

that a vote of thanks and appreciation be extended to the Pueblo County Medical Society for its very beautiful entertainment, and the splendid manner in which the visitors had been taken care of generally; also to the hotel management of the Congress Hotel, to the Minnequa Country Club and to the Steel Works Y. M. C. A., for the many courtesies extended during this meeting.

The motion being regularly seconded and put to a vote, was carried unanimously.

Dr. Black then offered a resolution of thanks to the retiring officers for the work done during their respective terms of office. This motion being seconded by Dr. Boyd and put to a vote, was carried.

At the suggestion of Dr. Espey, Dr. Epler, President-elect, made a few remarks.

The report of the Committee on Necrology, handed to the secretary too late for reading, is as follows:

#### REPORT OF THE COMMITTEE ON NECROLOGY.

The Committee on Necrology desires that you note the following instances of death among the members of the Colorado State Medical Society. It seems probable that, due to inadequate methods of compilation, some names may have been omitted.

##### Denver County.

William Drexler, December 22, 1920.  
William S. Duboff, February 7, 1921.  
Stanley Eichberg, March 25, 1921.  
Charles Arthur Ellis, March 7, 1921.  
Frank Clair Kennelly, December 5, 1920.  
Edwin James Rothwell, September 7, 1920.  
Pierre Von der Smith, February 14, 1921.  
Michael D. Healey, June 24, 1921.  
Charles A. Ferris, February 1, 1921.  
Edward L. Fitch, September 1, 1920.

##### Boulder County.

Vivian Russel Penlock, August 19, 1921.

##### Lake County.

A. M. McClain, April 20, 1921.

##### Chaffee County.

Finla McClure, July 18, 1921.

##### Kit Carson County.

Earl R. Nutter, Joes, Colo., November 5, 1920.

##### Huerfano County.

Robert Durnell, August 18, 1921.

##### El Paso County.

J. H. Ferguson, December 4, 1920.

It seems fitting as the year turns on its course that we pause this brief time to regret the ravages of age, to deplore the havoc of disease and to lament the misanthropy of chance, which, during the past twelve months have thinned our ranks.

For this occasion mere mention of the deceased must suffice, even though we realize that our warm friendships, our admiration, our respect for accomplishment, our appreciation of endeavor and our sympathy in suffering all demand that we lament without ceasing these, our departed brothers.

And while we mourn the dead, may we not also remember the living? May we not say to the many grieving relatives and friends: "We also knew them; we also loved them. We mourn with you."

CLAY E. GIFFIN, Chairman.

C. E. COOPER,

E. L. MORROW.

There being no further business to come before the House, the meeting adjourned sine die.

F. B. STEPHENSON, Secretary.

(See review of minutes, next column.—Ed.)

## Review of the Minutes

Thirty-eight delegates out of a possible fifty were registered and seated.

Present active membership 984, an increase of 69 since previous annual meeting.

Reinstatement of nineteen delinquent members reported.

Treasurer's balance \$3,586.51, a decrease of \$121.91 from previous year.

Library increased by 48 volumes.

Committee appointed and empowered to publish a Jubilee Volume of references to the writings of Colorado physicians appearing in the past fifty years; \$750.00 appropriated towards the expense.

Arapahoe County Medical Society chartered, membership of eight.

New printing of Constitution and By-Laws ordered.

Committee on Public Policy and Legislation instructed to pay especial attention to any proposed legislation relating to antivivisection or antivaccination.

Annual Banquet made an official subscription event.

## Book Reviews

**A Nurse's Handbook of Obstetrics.** By Joseph Brown Cooke, M. D., Fellow of the New York Obstetrical Society, etc. Ninth Edition, Revised and Enlarged by Carolyn E. Gray, R.N., and Philip F. Williams, M.D. 189 illustrations and 4 full pages in color. Philadelphia and London. J. B. Lippincott Company. 1920.

A book that goes through nine editions certainly has merit. This ninth edition is, moreover, an improvement over its predecessor. Even physicians can obtain from it valuable ideas on obstetrics from the nurse's point of view.

The material added on prenatal care deserves special attention.

The text throughout upholds a high standard of ethics and professional work for nurses. Procedures are carefully and plainly outlined. The descriptions are comprehensive, giving the nurse a clear understanding of obstetrical technic, which is in itself a great help to the physician. By reason of its fullness it is perhaps a better reference than textbook for undergraduate nurses. However, the limited time at the disposal of the class in the average hospital is in itself a good reason why an obstetrical nurse should have a trustworthy manual continually at her disposal.

G. H.

**Diseases of the Lungs and Pleurae, Including Tuberculosis and Mediastinal Growths.** By Sir R. Douglas Powell, Bart., K.C.V.O., M.D., Lond., F.R.C.P., Hon. D.Sc. Oxon; M.D. Dublin; F.R.C.P.I., LL.D. Aberd. and Birm.; and P. Horton-Smith Hartley, C.V.O., M.A., M.D. Cantab., F.R.C.P. Sixth Edition, with illustrations. Cloth, price, \$10. Philadelphia: P. Blakiston's Son & Co., 1921.

An interesting and valuable book to the student of the lungs. Well written, with adequate references to European literature mainly, it offers opportunity for comparison with our own works upon the same subject. It does not suffer by this comparison.

W. S. D.

**A Text-Book of the Practice of Medicine.** By James M. Anders, M.D., Ph.D., LL.D., Professor of Medicine, Graduate School of Medicine, University of Pennsylvania, Fourteenth Edition, Thoroughly Revised With the Assistance of John H. Musser, Jr., M.D., Associate in Medicine, University of Pennsylvania. Octavo of 1,284 pages, fully illustrated. Philadelphia and London: W. B. Saunders Company. 1920. Cloth, \$10, net.

This, the fourteenth edition, maintains its usefulness thoroughly. Additions to the subject matter of existing diseases have been made. Influenza is rewritten in the light of the recent pandemic. Description of ten complaints not previously listed brings this book, as a text-book, up to the high standard which has always characterized this author's work.

W. S. D.



# MEDICAL COLORADOANA

(Continued from October, 1921.)

- Radiology and Electro-Therapeutics. Vol. 25, 1906, p. 353.
- Success and Failures in Roentgen Therapy of Epithelioma of the Lip. Vol. 25, 1906, p. 691.
- Present Status of Roentgen Therapy. Vol. 26, 1907, p. 266.
- Typhoid Fever. Vol. 28, 1908, p. 49.
- President's Annual Address Before the Medical Society of the City and County of Denver. Vol. 28, 1909, p. 379.
- Value of Roentgenographic Examination. Vol. 29, 1901, p. 1.
- What May Be Shown by Means of the Roentgen Ray. Vol. 29, 1910, p. 277.
- Why Use the X-ray? Vol. 31, 1912, p. 314.
- Invasion of the Lungs by Tuberculosis, as Seen by the Roentgenologist. Vol. 33, 1913, p. 1.
- Roentgenology in Estimating the Operability of Carcinoma Gastrica. Vol. 33, 1913, p. 85.
- The X-ray Examination in Gastro-Enterology. Vol. 33, 1913, p. 173.
- Immunization of the Child Against Tuberculosis. Vol. 34, 1914, p. 6.
- Some Notes Upon Ancient and Modern Hawaiian Native Medical Practice. Vol. 34, 1914, p. 189.
- Obituary. Vol. 34, 1915, p. 393.
- STRICKLER, W. M., Colorado Springs:**
- The Unfavorable Influence of Sepsis and Improper Exercise Upon Fibrosis in the Lungs, and the Favorable Influence of Certain Pathological Conditions. Vol. 12, 1892, pp. 70, 129.
- STUBBS, A. L., La Junta:**
- A Case of Complete Severance of the Larynx, With Recovery. Vol. 27, 1908, p. 233.
- Lichen Planus. Vol. 30, 1910, p. 41.
- Eugenics. Vol. 33, 1914, p. 454.
- STUVER, E., Fort Collins:**
- Auto-intoxication. Vol. 18, 1899, p. 376.
- The attitude of Newspapers Toward Regular Physicians and Scientific Medicine. Vol. 19, 1899, p. 280.
- The Treatment of Typhoid Fever, With Special Reference to the Infra-rectal Injection of Normal Salt Solutions. Vol. 20, 1901, p. 617.
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- Does Vaccination Prevent Smallpox? Vol. 22, 1902, p. 69.
- The Prevention or Amelioration of Vomiting During the Administration of Chloroform. Vol. 23, 1903, p. 1.
- Treatment of Fatty Heart. Vol. 25, 1906, p. 592.
- Treatment of Chronic Rheumatism. Vol. 26, 1907, p. 350.
- Anesthesia. Vol. 28, 1909, p. 395.
- Arms of Precision. Vol. 29, 1910, p. 355.
- Some Obstetrical Complications. Vol. 30, 1911, p. 348.
- Preventive Medicine, or Hygiene (Historical Sketch). Vol. 31, 1911, p. 215.
- The Relation of the Hospital to the Public. Vol. 32, 1912, p. 108.
- A Case of Cystitis. Vol. 33, 1913, p. 9.
- Farm Hygiene. Vol. 34, 1914, pp. 1, 45.
- Anesthesia. Vol. 35, 1915, p. 145.
- How Do Stimulants and Narcotics Affect the Human Body and Social Welfare. Vol. 35, 1916, p. 504; Vol. 36, 1916, pp. 14, 60, 103.
- Suggestions for Pregnancy and Confinement. Vol. 36, 1917, p. 405.
- Dr. T. D. Crothers—An Appreciation and a Reminiscence. Vol. 37, 1918, p. 446.
- Preventive Medicine or Hygiene (Historical Sketch). Vol. 38, 1914, p. 314.
- TAUBER, B., Denver:**
- The Hygiene and High Altitude Treatment of Phthisis Pulmonalis. Vol. 8, 1888, p. 15.
- TAUSSIG, A. S., Denver:**
- Treatment of Fatty Degeneration of the Heart. Vol. 25, 1906, p. 596.
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- Ideal Charity for the Dependent Tuberculous in Colorado. Vol. 31, 1912, p. 399.
- TAYLOR, C. F., Pueblo:**
- The Treatment of Tarantula Bite by the Muel-ler Method. Vol. 14, 1895, p. 298.
- TAYLOR, H. L. (with J. N. Hall), Denver:**
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- TAYLOR, T. E., Denver:**
- Some New Drugs and New Uses of Old. Vol. X, 1890, p. 97.
- Report of a Case. Vol. 11, 1891, p. 195.
- TENNANT, C. E., Denver:**
- "Stomach Troubles" of Gall-bladder Origin, With a Brief Report of Some Operative Findings and Final Results. Vol. 27, 1908, p. 239.
- Infection in the Right Upper Abdominal Quadrant. Vol. 27, 1908, p. 460.
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- The Treatment of Wounds. Vol. 29, 1909, p. 234.
- The Treatment of Burns. Vol. 29, 1910, p. 283.
- The Diagnosis of Ureteral Problems. Vol. 30, 1911, p. 264.
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Recent Advances in Diagnosing, Treating and Combating Epidemic Meningitis. Vol. 27, 1908, p. 469.
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(To Be Continued.)



# Colorado Medicine

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## Editorial Comment

### SMALLPOX AND VACCINATION.

#### Editorial Symposium on the Outbreak in Denver.

At the time of this writing (December 6) smallpox in Denver seems to have been already effectually checked. It has been marked not so much by its extent as by its severity, and while it can hardly be called more than an outbreak, limited as it is by vaccination, it must nevertheless be plain to any layman with an open mind that a disease which strikes the vulnerable so fatally as it did in Denver in November would have spread away beyond its present limits and exacted a large toll in deaths if it were not for the existence of a rather widespread immunity.

The following short symposium was solicited to give a general review of smallpox, to aid in its recognition, and, more especially, to show how the immunity given by vaccination is demonstrated in the present outbreak in Denver. It is appropriately introduced by a review of vaccination and of antivaccinationist activities.

And just here, parenthetically, a timely warning may be in place. Since vaccinations by the thousands are being done at this time, it is to be expected that here and there a severe reaction of secondary infection will occur; the antivaccination cult (even those who have given up to fear and have themselves been vaccinated) will be on tip-toe to learn of such occurrences and bring them forth later as unfavorable "statistics" regarding the effects of vaccination. They will forget that the untoward occurrence was one in perhaps ten thousand cases. Hence, the importance of proper technic in vaccinating, use of fresh vaccine, and careful instruction to parents and patients as to after-care. To have well-armed patients is to have disarmed anti's.

F. B. S.

#### LEST WE FORGET.

For almost a century and a quarter, vaccination has been accepted and practiced by the medical profession. It is hard to estimate the extent of our obligation to Edward Jenner, its discoverer. By its use, the ravages of smallpox as a plague have been checked, and whenever a rigid system of administration has been carried out, covering a period of years, few cases crop out, and the disease loses its terror to the community. Strange as it may seem, this, the greatest of early medical discoveries, has always had its

opponents as well as its adherents. Opposition came from both within and without the medical fraternity, who, jealous of their inalienable rights, were very slow to accept the new panacea. Later, when adopted as a routine method of practice and enforced by law, it has been violently opposed at various times by political factions and beliefs, who are against law enforcement which seeks to curb the rights of the individual in favor of the greater welfare of the majority.

It would be interesting, if space would permit in this symposium, to tabulate the mortality statistics of the great wars of the last century, so as to compare them with similar facts covering our last World war, in which government control of medical sanitation and prophylaxis reached nearer to the one hundred percent standard of efficiency. Typhoid fever and smallpox, the two dread diseases which cost more lives than bullet or bayonet in the past, dropped to less than one percent in those armies holding to the high standard of immunization. Ten million of our native sons, answering to the national call to arms, whether serving at home or abroad, in cantonment or trench, were protected almost to a man from this form of disaster. France lost but three out of two score cases, as compared to over eight thousand out of thirty-seven thousand cases in the Franco-Prussian war. So statistics could be compiled in any civilized country engaged in the last conflict.

In early centuries, great plagues swept over Europe and devastated towns and cities, leaving but a few sturdy stragglers to "carry on". Later, as the protecting arm of the healing art became more useful, and as it was accepted, certain conditions were alleviated, and plagues became lesser epidemics, breaking out only in certain seasons of the year, and finally the years of health and happiness were lengthened, so that people forgot their ills and misery. They learned to love discipline and law in seasons of danger, but, like a child out of school, they forgot quickly and soon began to criticize and revile the very methods and instruments which had saved them. It has been well said that there is nothing new under the sun; also, that history repeats itself, hence the thought, does the new generation accept the experience of the past, or must it, perchance, acquire its own bitterness to redeem itself and grow? The child burns its fingers, but the next child still reaches out its hand.

Epidemics of smallpox come with surpassing

regularity about a generation apart. Each time the grim spectre appears the child-like public cries for aid to old mother Medicine, who not only gives the much needed aid, but offers enough counsel and advice to last it another generation. Colorado has been free from any serious outbreak for over twenty years, and the public has again forgotten. Never as in the last ten years has there been so combined an attack on vaccination. Misled philanthropists of means, combined with politicians seeking preferment by any route, have made a very bitter and persistent fight against the health boards of both City and State. A large amount of influence by pressure has been brought to bear upon our legislators. The public press is full of their advertisements. The experience tables of the United States Army and Navy have been ruled out in the necessary court trials which this controversy has fostered, by their lawyers, in their vain endeavor to win. Those who have had the interest of medical legislation at heart have stood the brunt of their attacks. Like Horatius at the bridge, they have made a good fight to protect the health of our state.

The Anti program was beginning again to get in full sway, when lo the Black Scourge appeared in Kansas City, and the grim reaper has exacted a frightful toll. From Chicago to San Francisco the map is becoming dotted with new danger zones. But Denver awoke; the old miracle happened; without compulsion or proclamation by law, Denver is being voluntarily vaccinated, and with surprising rapidity. Ten days has enrolled more loyal citizens of health than twenty-five years in our history. There has been no undue publicity; merely mortality statistics have been given the public through the press. The people have again sought the protecting arm of their physician—the trust that has never been betrayed. To those who have raised false hopes of security, void of rigid rules of living, sanitation, prophylaxis and immunization, we can only say:

“Tho the mills of God grind slowly,  
Yet they grind exceeding small.”

G. K. OLMSTED,

Vice President, State Board of Health.

SMALLPOX TYPES—IMMUNITY REACTION TO VACCINE.

The present epidemic of smallpox in Denver is characterized by a wide divergence of severity, ranging from the extremely mild to the most malignant or the so called “black smallpox”.

The onset is sudden with severe chills, high fever, intense headache, backache which nothing seems to relieve, pains in the legs, nausea, vomiting, occasionally delirium and, in children, convulsions.

A prodromal eruption, when it occurs, usually appears on the second day of the fever. This eruption may simulate closely that of measles, or, in some cases, the lobster-red skin of scarlet fever. The last named occurs only in hemorrhagic cases and is of serious prognostic import. An erythematous type, limited to the lower part of the abdomen and inner surface of the thighs, is seen especially in pregnant women.

The prodromal eruptions fade about the same time that the fever falls, to be succeeded by the characteristic hard, small, shot-like papules, arising from minute red macules, which rapidly increase in size and gradually become vesicular; this eruption appearing first on the forehead, face, wrists and forearms and spreading over the entire body, even involving mucous membranes of the eye, mouth and throat. These vesicles are umbilicated at first, and after another two or three days, the contents become purulent, when the pustules lose their umbilication and become large and globular. Where the pustules are thickly set upon the face, swelling and intumescence take place. Lips, nose and ears are greatly tumefied, and the scalp swollen and painful. There is a well marked leucocytosis during the stage of suppuration.

The same initial symptoms prevail in the confluent form, though usually of greater severity. The more the eruption shows itself before the fourth day, the more apt it is to become confluent. The papules may at first be isolated and it is only later, in the stage of pustulation, that the eruption becomes confluent.

In addition to the above or ordinary types, we have hemorrhagic smallpox, which occurs in two forms:

First, purpura variolosa: In this form at the

All Lots and Groups Combined.\*

No. of Years Since Last Successful Vaccination.	No. Vac.	Immediate Reaction					Accelerated Reaction	Primary Reaction
		0	1+	2+	3+	4+		
½ year or less.....	1,226	82	211	136	81	716	27	..
½ to 1 year.....	803	13	16	22	19	733	55	..
1 to 2 years.....	544	12	22	28	32	450	30	..
2 to 3 years.....	351	5	17	14	20	295	12	2
3 to 4 years.....	268	4	10	10	15	229	14	..
4 to 6 years.....	308	2	16	15	12	263	15	..
6 to 10 years.....	613	5	20	23	32	533	35	1
Over 10 years.....	752	6	21	27	18	680	40	..
No signs of successful vaccination (no visible evidence of scar).....	275	100	33	23	7	112	15	77
History of smallpox.....	113	17	16	17	6	57	7	1
Total.....	5,253	246	382	315	242	4,068	250	81

\*Bulletin No. 110, Notes on Preventive Medicine, Bureau of Medicine and Surgery, U. S. Navy.



end of the second or third day an erythematous rash appears, especially in the groins, with small punctiform to split-pea sized hemorrhages; the rash extends rapidly, becoming more hemorrhagic, ecchymoses appearing on the conjunctiva and hemorrhages occurring from mucous membranes. This type is rapidly fatal, death occurring on the third to the fifth day, often before any papular or vesicular eruption makes its appearance.

The second form is variola hemorrhagica pustulosa: In this form, hemorrhages occur in the lesions themselves as well as in the intervening skin. Bleeding from mucous membranes is common, and the mortality is high, death occurring on the seventh to the ninth day.

Prophylaxis is summed up in two words—vaccination and isolation.

At the Great Lakes United States Naval Training Station, a vaccination was adopted primarily for the purpose of ascertaining the protection that actually existed among the men and for the purpose of studying the immediate reaction of immunity. The technic used was a combination of the incision and puncture methods with a view of bringing out as far as possible the distinct picture of the immediate reaction. The ordinary round needles supplied by the "trade" were used.

The arm to be vaccinated was thoroughly cleansed with ether. Control incisions and punctures were made high up on the deltoid, while vaccination was performed on the depression caused by the insertion of this muscle. With the point of the needle two small incisions about one-eighth inch in length and one inch apart were made through the drop of vaccine; as a rule, not deep enough to draw blood. To one side of these incisions two punctures were also made about one inch apart. The vaccine was rubbed over these incisions and punctures with the shaft of the needle.

All cases were examined within forty-eight hours after vaccination for the purpose of reading the immediate reaction. In order to describe the degree of reaction five arbitrary groups were made.

"Four plus" indicates the typical immediate reaction which is characterized by the formation of the distinct papule surrounded by a small area of hyperemia and oftentimes capped by a small yellowish crustlike formation. The combined method of vaccination brought forth the distinctness of this reaction very forcibly.

"Three plus," "two plus" and "one plus" represent gradations of the reaction. The variation in the degree of the reaction probably indicates the suddenness of its subsidence—some of these reactions having reached their acme at some previous hour, were already subsiding when seen.

"Zero" indicates that no reaction was seen at the end of forty-eight hours as compared with the control incision.

The following composite table shows number of immediate reactions, degree of immediate reactions and positive reactions after various periods since last successful vaccination. These

are the so called immunity reactions as distinguished from the "take" of an original vaccination.

What determines success in vaccinating any group of men?

The most important feature of all is the potency of the vaccine used at the time vaccination is performed. But the important factor is the keeping qualities of the vaccine after it has left the manufacturer. The two or three days which are required to deliver any lot of vaccine from the manufacturer to the consumer may often be disregarded, but if the shipment is made during the hot summer months the untoward effect on the vaccine may be marked. It is common knowledge that cowpox vaccine should be kept in a cold place. The usual place of storage is the icebox. The temperature of an ordinary icebox is between 50° and 60° F.; as a rule, nearer 60° than 50°. Vaccine kept at such temperature will not retain its potency very long; deterioration may be noticed during the first week. Cowpox vaccine should be kept near the freezing point; if kept below 32° F. it will retain its potency indefinitely. Extreme cold does not injure it. At the naval training station, Great Lakes, Ill., it was found that the cold room of the commissary store, at all times below 40° F., served as an ideal place for keeping the cowpox vaccine. The place to keep it on board ship is in the cold storage room.

To overcome deterioration during actual shipment of vaccine it seems that the plan recommended by the U. S. Public Health Service would be ideal. They recommended the use of ice-cream freezers, in which the packages of vaccine are kept in constant contact with ice.

Another question of importance is the inherent potency of the vaccine when it leaves the plant. It may be safely stated that some variations exist. A continued breeding of the vaccine virus from calf to calf will, in the long run, decrease its potency. The interposition of another species of animal, such as the rabbit or man, at various intervals, will cause the cowpox vaccine to pick up its potency again. The experience at Great Lakes seems to show that virus regenerated in this manner gives far better results than the others, even when the actual storage of the various lots of vaccine has not been under ideal conditions.

Finally, it should be borne in mind that:

Every vaccination should be inspected within thirty-six or forty-eight hours for the purpose of reading the immediate reaction of immunity.

Potent vaccine should be used in vaccination.

Vaccine kept in storage should at all times be kept near the freezing point. The cold storage compartment is an ideal place for storage.

It should not be carried in one's pocket, where body warmth will affect it.

G. P. LINGENFELTER.

#### THE PRESENT OUTBREAK IN DENVER.

Previous to 1907 no authentic records were kept of smallpox cases in Denver. In 1911 there was a flare up and 472 cases were reported that year. From then until 1918 the cases jumped



up to 828. In 1919 there were 567 cases and in 1920, 953 cases, which marked the peak.

In 1921 there was no marked increase in cases but in November the mortality jumped up so rapidly that we realized we had a serious hemorrhagic type of the disease in our midst. In November 50% died and only one of the hemorrhagic cases was vaccinated, and he claimed he was vaccinated when a baby. Of the 17 who have died he was the only one that claimed to have been vaccinated, and none other showed evidence by scar. In 41 cases reported in November, 4 only stated they had been vaccinated.

The propaganda of the American League for Medical Freedom, which has headquarters in Chicago, is liberally supplied with funds and is active in the Central West, the Northwest, and the Pacific Coast States, has interfered in many ways with efficient vaccination work.

When the hemorrhagic form appeared in this city, the newspapers were requested to conceal nothing, but give the people the actual truth, and up to date they have assisted the health department in every way. As soon as the death record appeared in the newspapers the people began to flock to the health department and demand to be vaccinated. There was no compulsion and there were no arguments. To give an idea of what was done in this line, I may state that 3,309 people were vaccinated by the department in one day, and from the beginning of the epidemic up to the present time we have vaccinated 18,000 persons (December 6).

In the meantime it must be considered also that the physicians in the city have vaccinated perhaps many more than that, and as near as we can judge about 50,000 people have been vaccinated. The remarkable thing is, that each and every one was a volunteer and there was no compulsion and no suggestions were offered by the health department. I think it is the first time that such a thing has occurred, and for the medical fraternity, who for years have been insisting on vaccination, it was a great victory.

W. H. SHARPLEY,

Manager of Health and Safety of the City and County of Denver.

#### THE LAW ON COMPULSORY VACCINATION.

Compulsory vaccination may be imposed where smallpox is prevalent, under an opinion of the Attorney General:

"When smallpox is prevalent, local boards of health may make a regulation requiring all school children to be vaccinated against smallpox, or in lieu thereof remain away from school during the prevalence of smallpox, provided that a history of having had smallpox or a recent successful vaccination against smallpox will be held as sufficient to permit the child to enter school."

Then again, under Judge Morley's decision in a Denver case where a child had been refused admission to school because it refused to comply with the ordinance forbidding any child to attend school who had not been vaccinated within the seven years next preceding, this ordinance was upheld by the decision of the Judge. There is also another opinion by the Attorney General,

where the Board of Health had made certain regulations regarding vaccination of school children, that it was the duty of the School Board to enforce such regulations.

J. W. MORGAN,

Medical Inspector, State Board of Health.

#### KANSAS CITY STATISTICS.

A night telegram dated December 5, received by the editor from M. K. Robertson, secretary of the Kansas City Board of Health, says that at that time there had been reported three hundred and four cases of smallpox and one hundred and seven deaths. The only case of death which showed an old scar had received his vaccination thirty years before. Otherwise, in all people vaccinated above ten days there were no deaths, but in six cases where vaccination was taking at the time of onset of smallpox, there were three deaths.

The inference from the last statement would appear to be that to ward off smallpox the vaccination reaction must have been completed before the onset of the disease.

#### MODERN MEDICINE IN CHINA.

Just as it is common among Europeans and eastern Americans to regard Colorado as still forming a part of the wild and woolly west where every man carries a gun in his hip pocket, so the majority of white men are probably in the habit of thinking of China as she was pictured to western civilization half a century ago. Yet modern China is the one important area of world commerce which apparently has not experienced the slowing down of manufacturing development which characterized the past year in England and America. The valley of the Yang Tse river is being rapidly industrialized. Additional cotton mills are under construction; electric light and power plants are being extended; and there is a striking movement for the establishment of cement factories. British and German firms are supplying the necessary machinery. In the past twenty years one hundred and twenty-five up-to-date flour mills have been erected, some of them of large capacity.

Japan slumbered for centuries, but finally awoke somewhat dramatically to adopt western science and method. China, continental instead of insular, larger in mass and therefore harder to permeate, but with a population fundamentally of the same material as that of Japan, is traveling later, and somewhat more slowly, but with geometrically accelerating speed, along the same path.

Western Europe marked time through its own middle ages and entered rather hesitatingly upon the era of modern scientific investigation and industrial progress. The medical teachings of Galen endured almost unchallenged for a thousand years or more. Long before the birth of Christ, Chinese physicians shrewdly observed and described the symptoms of such diseases as cholera. Until recently prejudice against human dissection and post mortem examinations delayed scientific advance in Chinese medicine, but we must remember that in England a similar prejudice was not legally overcome until 1832.

Thanks to the activity of Christian missions, the past twenty or thirty years have seen a remark-



able development of modern medical science among the Chinese. At first extraneous, and in a sense forced and artificial, this movement is rapidly becoming a part of Chinese national life, and is being led increasingly by native physicians.

The National Medical Association of China, formed in 1915, already possesses a membership of nearly five hundred Chinese physicians who have received a modern medical training, and it is said to include several men and women of outstanding scientific attainment. There have been established a few medical colleges whose standards are not lower than those of leading European and American organizations. One of the largest institutions for medical instruction in China has recently been established in Tsinan, capital of the province of Shantung. It was primarily the product of the amalgamation of three small missionary medical colleges, has been generously supported by the Rockefeller Foundation and by British donors, and has an expert faculty of over twenty whole time teachers from the leading universities of Great Britain, Canada, and the United States.

The student body, numbering about one hundred and fifty, is drawn from almost every part of China with the exception of the far western provinces. After an entrance examination, students who have not already taken satisfactory scientific courses are required to attend the premedical school for not less than two years. After further examination, they enter the school of medicine for a further term of five years. The reason for this prolonged period of compulsory study is said to be the necessity of changing the Chinese student from his passively receptive method of acquiring knowledge to habits of critical and experimental observation in laboratory and ward.

After sufficient training along these new lines the Chinese student demonstrates, says Balme (*Glasgow Medical Journal*, 1921, page 129) that he is possessed of excellent reasoning power and can apply his knowledge to the solution of unfamiliar problems. To overcome an excessive tendency to "pigeon-hole" his knowledge, it has been found desirable to require each student personally to carry out every form of investigation upon such patients as are allotted to his care, rather than to relegate the work to other departments. Thus he is expected to make examinations of urine and feces day by day, to do his own blood counts, and to be present at x-ray examinations and Wassermann tests.

The English language is made a compulsory study, so that the student shall be able to read with comparative ease medical books in English; but the basis of all lectures and demonstrating is the Chinese (Mandarin) language. This compels the student to "think medicine" in his own tongue, and prepares him for handing on his modern medical knowledge to his own people. The Chinese government is defraying the cost of translating medical and other scientific terms into Chinese; and in recent years a special Publication and Terminology Committee of the Chinese Medical Missionary Association has been busily engaged in this work and in the translation of a number of leading medical text books into the Chinese language.

W. H. C.

## THE BURIAL AT ARLINGTON.

Washington, D. C., November 12th, 1921.

The Editor,  
Colorado Medicine,  
Denver, Colorado.  
Dear Doctor:

The extraordinary exhibition of public sentiment attendant on the Armistice Day ceremonies here yesterday has raised a query in my mind whether the profession of Colorado, which contributed so generously to the success of our arms in the late war, would not be more interested in a brief description of this memorial service than in a summary of the proceedings of the annual session of the Central States Pediatric Society at Cleveland, which you kindly invited me to cover.

In any event, I shall take the liberty to trespass on your urbanity and you may consign this note to your columns or your fireplace, as you see fit.

For some weeks past, as you know, popular interest has been deeply aroused in the preparations made by Congress for the return of one of our unknown dead, selected from several thousand interred in the four national cemeteries in France, and entirely unidentified at the time of burial. With the arrival of the body on the old flagship *Olympia*, November 9th, an intense emotionalism was easily manifest throughout the Capital, which has always seemed so blasé and indifferent to pomp and ceremony. Multitudes of people, mainly from the Atlantic seaboard but many from distant points, have crowded into the city until the streets are almost impassable, yet it is plainly evident that few are on holiday bent, or moved by idle curiosity.

It would appear that countless thousands of our citizens have accepted this as an occasion, unique in the history of this country, for the universal display of transcendent respect and gratitude felt for those who gave up their lives for human liberty, and they have showered upon this unknown soldier honors probably never before received by an American, regardless of station.

Unclaimed by any mother among the thousands who sent their boys away on the great crusade, he has been adopted as the son of his devoted country; his coming has crystallized those nebulous ideas we all share in times of patriotic exaltation, and the services attending the burial have constituted an apotheosis of popular fervor rarely seen in the history of our people.

Speaking of this nameless youth, whatever his place may have been in life, a distinguished writer has said: "No man has ever given more. Youth, fortune, love and fame, his very identity flung away for country's sake at the cannon's mouth, and in exchange an immeasurable immortality, the laurels of the victor, the veneration of the world, the homage of civilization, the adoration of countless generations yet unborn who shall stand at his tomb and from the impenetrable mystery which envelops him draw



those splendid inspirations which alone can keep America great in the years to come."

From the Olympia the body was borne to the Capitol and placed under the great dome on the catafalque, where only our immortals have rested—Lincoln, Garfield, McKinley. Across the rotunda ropes were stretched, and through this aisle, guarded by marines, 106,000 persons slowly passed between 6 a. m., November 10th, and 4 a. m., November 11th. On the casket one noted first a withered handful of roses, placed there by Sergeant Younger when he selected this body in a little chapel near one of our great cemeteries in France. It looked pitiful beside the wreaths laid on the day previously by the President and Mrs. Harding, by the Supreme Court and by the Congress, yet it was the agent which brought to this nameless lad such impressive homage. About the bier and around the great rotunda were massed floral tributes from every friendly nation in the world, as well as from all the patriotic societies and orders of the United States. Through the courtesy of Senator L. C. Phipps, I was permitted to spend an hour outside of the passageway, where I could not only observe the passing throng but could read the inscriptions on the various set pieces presented by foreign governments. Strangely enough, the most beautiful tributes came from South Africa and India. Many of the memorials were cast in bronze, the one from China, representing a winged figure of Victory, being especially conspicuous.

At eight o'clock on Armistice Day, the funeral services began, and were not completed until nearly two in the afternoon. The body was taken from the Capitol and, preceded by a great military escort, representing all arms of the service, was carried on a caisson down Pennsylvania Avenue, past the White House and on, over the historic river, to the stately marble amphitheater in Arlington. Behind the casket came the President and General Pershing, the Supreme Court, both houses of Congress and the holders of congressional medals of honor, all on foot. Then we noted Ex-President and Mrs. Wilson, riding in an open carriage, and the only persons receiving applause from one end of the Avenue to the other. It seemed an odd demonstration at a funeral, but the late President looked so old and feeble, so careworn and forgotten, that it rather appealed to the sympathies of many who, whether or not they could endorse his views of government, could afford a cheer for a good loser.

At the amphitheater, recently completed and capable of accommodating many thousand persons, the ceremonies were dramatic in the extreme. The press was so great that more than a hundred thousand were unable to enter the structure at all, yet they heard everything perfectly through the marvelous arrangement of amplifiers over the speaker's rostrum. The President's address was a splendid effort, appealing for a sane adjustment of international problems and decrying the arbitrament of war, while offering a feeling tribute to those who fell in the country's service. The musical program

was as complete as it was beautiful. Miss Rosa Ponselle, assisted by other soloists from the Metropolitan Opera Company, volunteered her services, and sang with great feeling. The Marine Band was in charge of the instrumental numbers. In the open air, under a beautiful Virginia sky, the scene was one that few who saw and heard will ever forget. At the conclusion of the President's stirring address, representatives of the Allied Governments decorated the unknown hero with their highest military honor and the remains were borne to the sarcophagus, where soil from our cemeteries abroad had been sprinkled. "And wrapped in the tender embraces of the flag for which he gave his life in battle, the boy who through some village street had lightly marched away to war was home again."

I enclose complete program\* but regret that I cannot describe adequately the obvious re-dedication of a great multitude to a lofty ideal.

Very cordially yours,

J. W. A.

\*Feeling that a record of the program of this national ceremony would not be out of place in the files of the Colorado State Medical Society, it is here reproduced:

### PROGRAM

#### Ceremonies at Memorial Amphitheater

November 11, 1921.

1. All guests provided with reserved seats in the Amphitheater take their places by 11:15 a. m. Those not provided with seats take position in the areas allotted outside of the Amphitheater by the same hour.
2. At 11:15 a. m. the casket bearing The Remains arrives at the west entrance of the Amphitheater.
3. The casket is removed by the body bearers and, preceded by the choir and the clergy, and followed by the pall bearers and by General Pershing and distinguished officers of the Army and Navy as mourners, is borne through the west entrance of the Amphitheater around the right colonnade to the apse, where it is placed on the catafalque. During the processional the audience will stand uncovered.
4. The mourners, who have accompanied the procession from the Capitol and are provided with tickets to the Amphitheater, then enter the Amphitheater at the entrances specified on their tickets and take their places, guided by ushers. Those who have no tickets take position outside of the Amphitheater in areas reserved for them.
5. The Marine Band takes position, via south entrance, in the colonnade just south of the apse and plays appropriate music.
6. 11:50 a. m.—The President and Mrs. Harding enter the apse and are seated.
7. 11:56 a. m.—The National Anthem.....  
.....The Marine Band
8. 11:58 a. m.—The Invocation.....  
.....Chaplain Axton  
(Audience standing.)
9. 12 m.—Trumpet call, "Attention," thrice



sounded. (All standing and observing two minutes' silence.)

10. 12:02 p. m.—Termination of silence. (Announced by Band playing opening chord of "America.")

11. Hymn, "America," sung by audience, led by the Quartet and accompanied by the Band. (Audience remains standing until completion of Hymn.)

12. Address . . . . .

. . . . .The President of the United States

13. Hymn, "The Supreme Sacrifice," sung by Quartet from Metropolitan Opera Company of New York, accompanied by Band.

Miss Rosa Ponselle Mr. Morgan Kingston

Miss Jeanne Gordon Mr. William Gustafson

14. The Unknown Soldier is decorated with the "Congressional Medal of Honor" and with the "Distinguished Service Cross" by the President of the United States.

15. The Unknown Soldier is decorated with the Belgian "Croix de Guerre" by Lieutenant General Baron Jacques, representing the Belgian Government.

16. The Unknown Soldier is decorated with the "Victoria Cross" by Admiral of the Fleet Earl Beatty, accompanied by General The Earl of Cavan, representing the King of England.

17. The Unknown Soldier is decorated with the French "Medaille Militaire" and with the French "Croix de Guerre" by Marshal Foch, representing the French Government.

18. The Unknown Soldier is decorated with the "Gold Medal for Bravery" by General Armando Diaz, representing the Italian Government.

19. The Unknown Soldier is decorated with the Roumanian "Virtutea Militara" by the Roumanian Minister, Prince Bibesco, representing the Roumanian Government.

20. The Unknown Soldier is decorated with the "Czechoslovak War Cross" by the Czechoslovak Minister, Dr. Bedrich Stepanek, representing the Czechoslovak Government.

21. The Unknown Soldier is decorated with the "Virtuti Militari" by the Polish Minister, Prince Lubomirski, representing the Polish Government.

22. Hymn, "O God, Our Help in Ages Past," sung by audience, led by the Quartet, and accompanied by Band.

23. The Psalm . . . . .Chaplain Lazon

24. Solo, "I Know That My Redeemer Liveth" . . . . .Miss Ponselle

25. The Scripture Lesson . . .Chaplain Frazier

26. Hymn, "Nearer, My God, to Thee," sung by audience, led by the Quartet, and accompanied by Band. (Upon completion Band moves to position outside of Amphitheater.)

27. The Remains are then borne from the apse through the southeast entrance to the sarcophagus, preceded by the clergy and followed in order by the pall bearers, the President and Mrs. Harding, the Vice President and Mrs. Coolidge, senior Foreign Delegates to the Conference, the Secretary of State, the Secretary of War, the Secretary of the Navy, foreign officers who presented decorations, General Pershing and others

seated in the apse of the Amphitheater, the Band playing "Our Honored Dead." The President and Mrs. Harding and those accompanying them from the apse take positions as indicated by ushers. Those seated in the ten boxes to the right and the ten boxes to the left of the apse, escorted by ushers, pass out through the entrances adjacent to the apse and take their places to the right and to the left, respectively, of the party immediately behind the President and Mrs. Harding. Members of Congress and their wives pass through the apse at the main east entrance and form in the rear of President and Mrs. Harding and those accompanying them. All others seated in the Amphitheater, except those in the gallery, then file out of the Amphitheater by the west, north, and south entrances, or may remain in the Amphitheater if they so desire. Those having seats in the gallery will not leave the gallery until after the completion of the ceremony at the sarcophagus.

28. After The Remains of the Unknown Soldier have been borne to the sarcophagus and while the audience is leaving the Amphitheater for positions near the sarcophagus, the Band plays "Lead, Kindly Light."

29. The Committal . . . . .Chaplain Brent

30. A wreath is placed on the tomb of the Unknown Soldier by Mr. Hamilton Fish, Jr., Representative from New York.

31. On behalf of American War Mothers, a wreath is placed on the tomb of the Unknown Soldier by Mrs. R. Emmett Digney, President National American War Mothers.

32. On behalf of the British War Mothers, a wreath is placed on the tomb of the Unknown Soldier by a British War Mother, Mrs. Julia McCudden.

33. Chief Plenty Coos, Chief of the Crow Nation, representing the Indians of the United States, lays his war bonnet and coup stick on the tomb of the Unknown Soldier.

34. Three salvos of artillery.

35. Taps.

36. The National Salute.

## LABORATORY TECHNICIANS AND LABORATORY ADVERTISING.

The subject of technicians in various branches of medicine has received editorial comment in these pages heretofore\* and the editor's views as then expressed have not changed. It is to be expected that when the laboratory work of medicine is left to lay technicians, their verdicts accepted and their work encouraged by the internist and surgeon, commercial laboratories will arise almost overnight and, there being no ethical code such as physicians recognize among the members of the new craft, the resort to advertising is naturally to be expected. The place for a technician, if he must exist, is in a laboratory conducted by a physician specialist who manages his specialty with jealous regard for the principles of practice and relations with other physicians which constitute

\*The Technician in Roentgenology, editorial, Colorado Medicine, October, 1919, p. 238.

\*Technicians in Anesthesia, editorial, Colorado Medicine, February, 1921, p. 26.

our code of ethics. No technician should render diagnoses, and his work should always be directed and interpreted by the physician who conducts the laboratory.

The commercial clinical laboratory has become a pest. The commercial x-ray laboratory is as bad. Physicians engaged in these specialties know how open the work may be to misinterpretation; that an x-ray plate of the chest, for example, contains confusing normal shadows that can be pointed out to the average physician as representing pathological conditions; that a doubtful chemical reaction can be wrongly reported; and that therefore scientific honesty is an absolute essential to the value of the laboratory.

It is perhaps in part for the above reasons that clinical pathologists are wincing at the inroads made in their specialty by advertising technicians and have banded themselves together in some states to keep laboratory work upon a plane level with that of general medicine and surgery. The radiologists are likewise concerned in having the specialty which they have developed confined to those who know anatomy, pathology, physiology, and the essentials of surgery—in other words, to doctors—for only with such knowledge can one properly interpret the results and properly apply the principles of radiographic and radiotherapeutic technic.

The following two sets of resolutions deserve publicity among the profession and should meet with approval from all who appreciate the sacredness of medical ethics and medical science:

#### RESOLUTIONS\*

##### Passed by the Colorado Society of Clinical Pathologists September 3, 1921.

WHEREAS: The Diagnosis of disease by laboratory methods, instead of being confined to physicians trained in medicine, is being exploited by lay technicians and commercial houses; and,

WHEREAS: There is danger of this specialty in medicine becoming degraded by unseemingly and blatant advertisements of commercial laboratories now appearing in certain medical journals.

THEREFORE, BE IT RESOLVED, That the status of the clinical pathologist is on a par with that of the internist, surgeon or other specialist in medicine, and conformable to the same code of ethics and high moral standards.

RESOLVED, That the publication of advertisements calling attention to the merits of a particular laboratory and announcing prices of various laboratory examinations are contrary to good taste and subversive of the ethics of the practice of medicine.

RESOLVED, That the Journal of the American Medical Association, the official journal of the various state medical associations, and other reputable medical periodicals, be requested to bar the advertisements of commercial laboratories from their advertising pages, permitting only licensed graduates of medicine an insertion of their professional cards, giving but name, specialty and address.

RESOLVED, That in the interest of the patient

and for the advancement of scientific medicine, encouragement should be given to the establishment of resident clinical pathologists in all communities where the population and number of physicians warrant specialization in this field of medicine.

#### RESOLUTIONS

##### Adopted by the Radiological Society of North America at Its Annual Meeting, Chicago, December, 1920.

WHEREAS: The question of the ownership of the roentgenogram has never been definitely settled; and,

WHEREAS: Other points regarding the ethics and conduct of radiologists relative to the disposal of their roentgenograms, records and reports of their findings, have never been clearly outlined; therefore, be it

RESOLVED, by The Radiological Society of North America, that it is the sense and judgment of this society, that all roentgenograms, plates, films, negatives, photographs, tracings or other records of examinations are hereby declared to be the exclusive property of the radiologist who made them (or the laboratory where they were made); and be it further

RESOLVED, That the ethics of this society shall be in full harmony with the Principles of Medical Ethics of the American Medical Association, with the following additions, to-wit:

The radiologist is hereby declared to be a consultant in all cases where he is called upon to examine patients.

The radiologist shall not make known to patients, their relatives, friends or guardians, any of his findings or conclusions, nor shall he deliver to them any of the plates, negatives, films or prints, unless expressly requested to do so by the physician or surgeon who referred the patient for examination, or is in charge of the case.

It shall be considered unethical to advertise by circularizing in the medical or lay press with price lists or fee tables, descriptions or illustrations of office apparatus or facilities, or to advertise by displaying signs stating the medical specialty; or in the public press, telephone directories, or city, state or national directories, which are published for general use.

It shall be considered unethical for any one to claim superiority in diagnosis or treatment, due to some secret process, method or apparatus held to be known only by the claimant.

#### PUBLIC HEALTH INSTITUTE IN DENVER.

The following program of the Public Health Institute, to be held in Denver in May, is given prominence in these columns with the hope that many Colorado physicians who are not directly connected with public health work will see the advantage of spending the week in Denver and availing themselves of the teaching which the Public Health Service, under the auspices of the Colorado State Board of Health, has seen fit to offer to anyone interested.

In the fall of 1920 an Institute on Venereal Disease Control and Social Hygiene was held in Washington and more than six hundred persons

\*These resolutions, original with the Colorado society, were lately adopted verbatim by the State Pathological Society of Texas.



from all sections of the country attended all the short intensive courses. Because many who desired to take the courses were unable to travel the long distance to Washington to do so, the plan has been adopted of conducting courses in twenty-one representative cities in the North, East, South and West, so that at least one of these institutes will be within fairly easy reach of the person desiring to attend. The scope of the teaching has been extended so that many subjects will be included, as shown in the following program and comment submitted by Dr. Drinkwater:

#### PROGRAM.

**Monday, May 1, to Saturday, May 6, 1922.**

The Denver Institute will be held under the auspices of the Colorado State Board of Health. Dr. R. L. Drinkwater, secretary of the State Board of Health, is the director of the Institute.

Courses—The Denver Institute will deal with general public health problems.

Lecturers—The following lecturers have already been definitely scheduled:

M. F. Engman, M. D. (Syphilis).

Frederick R. Green, M. D. (Administrative problems and health education):

Alan Johnstone, Jr., A. M., LL. B. (The delinquent and protective social work).

A. T. McCormack, M. D. (Nutrition, general communicable diseases, and child hygiene).

Valeria H. Parker, M. D. (Protective social work).

Place—The Institute will be held in the City Auditorium.

Special Features—Dr. Frederick R. Green will deliver a public lecture on "The Development of Scientific Medicine and Its Importance to the People."

The following are the subjects to be taken up:

Tuberculosis  
General Communicable Diseases  
Administrative Problems  
Protective Social Work  
Child Hygiene  
The Delinquent  
Syphilis  
Gonorrhea

These will be discussed by the following local doctors:

Dr. J. N. Hall	Dr. Cyrus Pershing
Dr. Gerald Webb	Dr. C. S. Bluemel
Dr. Henry Sewall	Dr. Johanna Gelien
Dr. J. W. Ames	Dr. F. P. Gengenbach
Dr. Jno. R. Barber	Dr. G. W. Holden
Dr. C. N. Meader	Dr. Robert Levy
Dr. Tracy R. Love	Dr. G. P. Lingenfelter
Dr. A. W. Stahl	Dr. J. W. Morgan
Dr. Frank Kenney	

There are many of the local health officers in this state who have spoken of the lack of opportunity of improving themselves in their work. This Public Health Institute will be a chance for that improvement, and it is earnestly advised that all the two hundred and four local health officers take "a week off" and come. The subjects to be discussed by specialists from abroad and by local talent ought to be of inter-

est to all health officers who take their duties seriously.

The date of the Institute, May 1st to 6th, is far enough in advance to enable everybody to make his arrangements to attend.

The present seriousness of smallpox will, no doubt, call for special notice by Dr. McCormack, who has the subject "General Communicable Diseases".

The control of diphtheria which is now so much in evidence will no doubt be ably handled.

The consideration of these two diseases alone will repay all the time and money the trip will cost.

Then there are some very able local men whom it will be a pleasure to hear.

If the subjects under discussion become wearisome, there are to be free clinics at the various hospitals.

The Institute will furnish a good opportunity to get acquainted with the State Board of Health and its officers, will draw the workers of the state closer together and promote the health work in the state amazingly.

## Original Articles

### THE REMOVAL OF THE ASTRAGALUS IN OLD CASES OF INFANTILE PARALYSIS.\*

ROBERT G. PACKARD, M.D., DENVER.

To discuss the treatment of infantile paralysis we must first divide the disease into three definite phases: acute, convalescent and chronic. In the acute phase or stage of muscle tenderness which usually lasts some two or three weeks, the prime concern is to limit the nerve destruction by such measures as the administration of urotropine and the intraspinal injection of serum from monkeys and humans. Rest in bed is imperative, however mild the disease; the pathology is essentially a hemorrhagic myelitis making any attempted function of the motor nerve cells, such as active or even passive exercise would produce, probably harmful. This rest in bed should be accompanied by the use of such apparatus as necessary for the prevention of contraction, notably that of foot-drop.

In the convalescent stage which lasts while spontaneous improvement continues, perhaps as long as two years, treatment aims at restoration of muscle power and prevention of deformity, while no operative procedures, unless very minor ones, are indicated. Though some improvement will probably occur there usually appear also certain atrophies and consequent tendency to deformity unless close attention is kept up. Here then comes on the one hand the use of braces to resist this tendency to deformity, and on the other hand our aids in the restoration of muscle function. Braces and apparatus, while preventing contractures, may also give that support sometimes necessary for standing and walking, as, for instance, in quad-

\*Read at the annual meeting of the Colorado State Medical Society, October 5, 6, 7, 1921.

riceps paralysis to prevent the knee from collapsing. But it is essential that hand in hand with brace treatment we use such measures as will promote partial or entire return of muscle power. When we remember that a muscle's function is due to the activity of many anterior horn cells, and since we know that the partial paralysis of a muscle is the result of the destruction of certain of these nerve cells, we can reason that the restoration of function in such a partially paralyzed muscle must be brought about by the further activation of the remaining uninjured nerve cells and the establishment of new connections between them and their proper muscles or muscle groups.

Our aids, then, at this time include electricity, heat, massage, and muscle training. Electricity can be eliminated at once, though formerly considered the foremost measure. Heat can be used in connection with the remaining two courses of treatment, massage and muscle training. As to the former we all know that the kneading and stroking stimulates the venous blood flow, and therefore the arterial, thus ridding the relaxed muscles of their waste products and giving better nutrition and tone. Last of all we have the valuable adjunct of what has been called "muscle training", most thoroughly studied and elaborated by Lovett of Boston. In this muscle training, to use Lovett's own words, "the patient concentrates his attention on the attempt to accomplish the movement of the muscle that is apparently without power, while the movement is performed passively by the assistant". That is Lovett's keynote. The muscle thus performs what it can through the mental effort of the patient, while the remainder of the normal arc of motion is performed passively by the attendant. In this way, according to the degree of paralysis, the muscle is encouraged to work first with assistance, then without assistance, then finally with resistance, the latter always being a little less than enough to stop the movement.

After these acute and convalescent stages, we come to the chronic, that phase where no more improvement is to be expected from the measures above described. Now, after these introductory remarks I wish to confine my paper to the treatment of the various paralyses and paralytic deformities of the foot and ankle, operations not only to correct these deformities but principally to secure stability.

Then, what are the commoner paralyses and deformities of the ankle and foot? They may range all the way from the loss of power in a single muscle to a completely flail foot. The most common single paralysis is that of the tibialis anticus, which muscle is a dorsiflexor and inverter of the foot. The posterior tibial, which is a plantar flexor and inverter, is a close second. Next comes the extensor of the great toe, then the extensors of the other toes, next the peronei which evert the foot, followed by the gastrocnemius, which plantar-flexes the ankle, and finally the short toe flexors. These are the single paralyses, but more often they occur in various combinations, with the result that

the most common deformity is equinus or foot-drop, due to the combined paralyses of the dorsiflexors. With this element of equinus is often found the additional factor of inversion or eversion, the so-called equino-varus or equino-valgus. Another deformity is the calcaneus or heel-drop, with or without valgus or cavus, due to paralysis of the calf muscle, the gastrocnemius, which allows the os calcis to tip forward, exaggerating the arch and making the front of the foot a mere useless appendage.

The first operation done in infantile paralysis was the simple tenotomy, the subcutaneous section of the tendo achillis in those cases of equinus or foot-drop where some muscular power does remain in the dorsiflexors. Sometimes tendon lengthening is performed so as not to destroy absolute continuity of the cord. And in opposite conditions such as calcaneus or heel-drop due to gastrocnemius paralysis, tendon shortening or reefing of the capsule or both are sometimes practiced. Tendon transplantation is occasionally very satisfactory, substituting a healthy muscle for a paralyzed one. The best example of this latter procedure seems to be in the cases of valgus or eversion of the foot where on account of paralysis of the tibialis anticus which normally inverts and dorsiflexes the foot, the healthy peronei muscles take advantage of the situation to produce the characteristic abduction and eversion. The operative procedure here is to divide one of the peronei at or near its insertion, free it of its sheath for a considerable distance above the annular ligament, then bring it across the leg, insert it into the sheath of the paralyzed anterior tibial and pass it within the sheath down to the proper insertion of the latter where it is best attached by directly suturing to the bone after deflecting the periosteum and then sewing the same over the knot buried in a depression in the bone. The writer has seen good results by this technic. Other less brilliant instances include transference of the extensor of the great toe to the scaphoid bone in cases of foot-drop, and using the peronei or the posterior tibial for the gastrocnemius.

As to the virtue of silk ligaments to take the place of paralyzed tendons, I have seen more poor results than good ones due to the stretching or the sloughing through the skin or to infection, whether recent or chronic. Better than a silk ligament insertion is tendon fixation or tenodesis, i. e., the conversion of tendons into ligaments. Here the paralyzed tendon is made taut and sewed into a groove in the bone, counteracting the deformity. Nerve transplantations have not yet proved their practical worthiness.

Arthrodesis or artificial ankylosis, though difficult to maintain in early childhood, certainly has its merits, and has often been done at the ankle joint to insure stability, accomplished by removal of the apposing cartilages and plaster fixation for three or four months. Likewise the mediotarsal and subastragaloid joints may be stiffened in cases of drop of the forefoot. However, there are distinct objections to ankylosis, mainly because a stiff ankle is a real disadvantage in walking, no dorsiflexion being possible,



and because in young children some distortion will occur in many instances. Instead of arthrodesis, a bone resection or osteoplasty has been practiced such as displacing upward and backward the posterior portion of the os calcis, in cases of calcaneus.

The removal of the astragalus, on the other hand, I believe, is one of the most rational procedures in bad poliomyelitis cases. When it is recalled that anatomically this bone is situated between the leg and the tarsus, and is the center of all important movements of the foot, we can see that this astragalus is likewise the center of any deformities or distortions, and hence helps to form the insecurity of the ankle by being now an extra and needless link between the leg and foot. Therefore it follows that its removal will essentially lessen this insecurity and that the fitting of the malleoli over the scaphoid on the inner side and over the calcaneocuboid junction on the outer side will further prevent lateral instability but at the same time allow a moderate flexion and extension. The operation was first devised and described in 1901 by Whitman of New York, primarily for cases of calcaneus and calcaneo-valgus, consisting in removal of the entire astragalus, displacement of the foot backward, and transplantation of the peronei into the paralyzed tendo achillis. But the operation has become very applicable in many other types of instability, indeed most satisfactory in that commonest condition of equino-valgus, and, I believe, absolutely indicated in the flail ankle and foot.

The operative technic that I have followed is modified from that described by Robert Soutter of Boston, which will be recited in substance: After applying a tourniquet above the knee, an incision is made starting posterior to the external malleolus and about one inch above its tip, sweeping down anteriorly in a circle to the middle of the tarsus and then curving downward to the base of the second or third metatarsal bone. The incision extends down to the bone, cutting slightly anterior to the peronei tendons which are not divided but drawn backward when thoroughly freed from their attachments behind the malleolus. The bands of the external lateral ligament are divided, the foot is somewhat adducted by the assistant, and the interosseous ligament is separated. The foot is now further inverted, the astragalus is identified and defined, and the head is freed from its attachment to the scaphoid. The bone is removed, preferably in three sections, the neck of the astragalus being first cut completely across as far forward as possible, by the osteotome, which, when withdrawn, is placed above the astragalus on its tibial surface as far inward as possible, the foot being held now in marked adduction, and the bone cut vertically down and back leaving a narrow disk close to the inner malleolus. Now the outer portion is first removed, then the disk-like piece is lifted out from its attachment to the internal malleolus, and finally the lower end of the bone forward of the neck. After complete removal of this bone, the foot is fully dislocated inwardly, exposing fully both malleoli.

Then with the osteotome, the tissues are dissected subperiosteally from the posterior surface of the fibula, and from the posterior surface of the tibia for an inch upward, and from the posterior, anterior, and outer surfaces of the internal malleolus, this all being done to allow of full backward displacement of the foot which is now readily accomplished, the inner malleolus now overlapping the scaphoid, and the external malleolus fitting over the calcaneo-cuboid junction. The deep tissues are now brought together with interrupted chromic sutures, and the skin united with interrupted silk-worm, sterile dressings are applied, and a plaster-of-Paris cast is put on with the foot in slight eversion and in moderate equinus, and the knee in moderate flexion. After about three weeks, that portion of the cast fixing the knee is cut away, and the entire cast removed usually in ten or twelve weeks, followed either by a brace, or in better cases simply by a shoe which has the outer edge of the heel raised three-sixteenths of an inch to prevent the tendency to varus. In none of my cases have I felt it necessary to attach the peronei muscles to the tendo achillis as first advocated by Whitman.

I want to report the following eight cases in five subjects:

Cases One and Two: Peter L., first seen in October, 1919; thirteen years of age, paralyzed eleven years ago. At that time he got around by creeping; he could sit up, but could not walk because of marked flexion deformities at both hips, quadriceps paralysis of left knee, and two flail ankles. After operations were done on both hips to overcome the flexion deformity by transplantation downward of the anterior iliac spines to lower the muscle origins of the tensor fasciae femoris, astragalectomy was done on each foot, November 3rd and 17th, 1919. Casts applied with ankles at right angles and knees in slight flexion, and the portions fixing the knees removed in three weeks. Casts entirely removed January 25th, 1920, after ten or twelve weeks fixation. Result showed complete lateral stability present, while slight motion in extension and flexion was allowed. Braces applied allowing ankle motion, one including support for paralyzed knee, and patient sent home in February, walking very satisfactorily with crutches, considering the extreme disabilities formerly existing.

Cases Three and Four: John K., thirteen years of age, with paralysis for eleven years; first seen in October, 1919. An overgrown boy for thirteen, wearing an eight and one-half shoe and weighing about one hundred and thirty pounds. In walking, he put his weight on the left foot, half dragging the right leg and foot. Though the left foot showed considerable eversion and foot-drop, the patient had adapted himself to using it, while the right ankle and foot were so utterly flail except for a taut tendo achillis that a definite outward subluxation of the foot was present, making the internal malleolus on which he walked very prominent. And in addition to all this, the boy had a paralytic dislocation of the right hip, making that limb



one and a half inches shorter when lying down, and over two and a half inches when standing. Astragalectomy of the right foot was done October 31, 1919, and on November 29 there was noted a marked decrease of the instability and less equinus deformity, and on January 23, on account of the dropping of the forefoot, an arthrodesis between the scaphoid and internal cuneiform was done. Astragalectomy of the left foot was performed June 28, 1920, now more indicated than when I had first seen the boy because a preliminary tenotomy of the tendo achillis, which I had done some weeks before, had rendered the joint less stable. After fixation for nine weeks, good stability was present, and the boy was sent home with proper braces. Though great improvement occurred, success in these two feet was not so marked in this boy as in the previous lad because of his great weight and his later lack of cooperation in continuing the follow-up brace and shoe treatment.

Cases Five and Six: Ernest C., ten years of age, with paralysis eight years previous; first seen in April, 1920. He walked with high steps to avoid tripping on the toes. Right foot flail except for short extensors and flexors of the toes. Left foot same except for some power in peronei and tibialis posticus, which made a marked valgus. Astragalectomy of right foot was done in May, 1920, and on August 4 the boy was walking without a brace, showing excellent lateral stability, and allowing some motion in extension and flexion. Left foot was similarly treated in November, fixation for ten weeks, with a likewise resulting excellent stability. No braces were applied, but directions were given to keep the outer edges of the heels raised to hold the feet in slight eversion, the best condition of stability.

Case Seven: Clarence S., aged twelve, with paralysis eleven years ago; first seen in August, 1920. This case was of different type—that of marked calcaneo-valgus, the deformity most suited for astragalectomy, a paralyzed gastrocnemius and tibialis posticus and anticus with the resulting characteristic prominent heel and the tilting forward of the bearing surface and the exaggerated arch of the foot, so that he walked mainly on the heel. Astragalectomy was done August 19, 1920, and plaster fixation for twelve weeks, with resulting excellent lateral stability, a much less prominent heel and some equinus. Left for home with no brace, but with heel raised on outer side.

Case Eight: Miss O., aged fifty-six years with paralysis since age of two; first seen in July, 1920. The right lower limb showed almost complete paralysis of the quadriceps, making it necessary for her to put her hand against the thigh in walking to prevent collapse of the knee. The ankle showed almost complete paralysis of the foot, with a flaccid deformity of equino-varus. She was wearing unsatisfactory apparatus. I hesitated to operate on one of her age, but she was insistent, and astragalectomy was performed July 31, 1920. Healing took place normally, and the cast was retained until September 30. The foot showed no soreness on manipulation, slight

flexion and extension were allowed, and lateral stability was very good; in fact, much better than I had anticipated. A brace was applied, a double caliper splint with a lock joint at the knee and a simple retentive foot piece placed in the shoe with the heel slightly raised on the outside. She was soon walking with crutches and left the city last October. Her final improvement will be slow on account of her age, but the foot showed a definitely better weight-bearing surface.

## CONCLUSIONS.

1. Infantile paralysis presents three definite phases, each demanding very different courses of treatment. In the acute stage, medicinal measures, absolute rest in bed, and, when necessary, retentive appliances are indicated.

2. In the convalescent period, lasting for a period of some two years, no operations are in order. The restoration of muscle power and the prevention of deformity are attempted by the conservative measures of various retentive apparatus and by massage and intelligent muscle training, while the patient is warned against over-exercising on account of the possible consequent harm to the motor nerve cells and tracts.

3. In the chronic stage, after no more natural or spontaneous improvement takes place, operative work is often of great value, to correct deformity and to secure stability.

4. Various operations have been done, depending on the type and severity of the disability. Tenotomy, tendon lengthening, capsule reefing, tendon transplantation, silk ligament insertion, tenodesis, nerve transplantation, osteoplasty, arthrodesis, have all been tried extensively with good and bad results, and all probably have distinct advantages.

5. Astragalectomy, I believe, is the most rational procedure for paralytic conditions of the foot where instability is the essential factor of disability. Removing now what has become a useless link between the leg and forefoot; advancing the leg on the foot; and locking the malleoli directly over the foot, as it were, all secure lateral stability and at the same time provide some motion in flexion and extension, so necessary for the bending of the ankle in walking.

6. Plaster fixation is necessary for some twelve weeks with the foot in position of mild equino-valgus, followed either by a light temporary brace or at least by a shoe, kept in position of slight eversion by raising the outer side of the heel by some three-sixteenths of an inch.

7. The operation should not be performed on children under the age of seven years on account of the tendency to early distortion in early bone growth. There is no upper age limit, provided operative procedure can be undertaken without danger to the patient.

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<sup>12</sup>Cook, Ansel G., and Stern, Walter G.: Report of Commission on Stabilizing Operations Upon the Foot. *Jour. Ortho. Surg.*, 1921, iii, 437.

### DISCUSSION.

**H. W. Wilcox, Denver:** This is a very interesting and instructive summing up of the various methods used in the treatment of the severe deformities and instabilities of the foot resulting from infantile paralysis. The aim of treatment in these cases, as in all deformities and their resultant disabilities, is to bring about a condition as nearly normal as possible, to restore the muscle balance or to bring about a condition which simulates muscle balance. Therefore, just what method is used will depend upon the extent of the weakness or actual paralysis of the muscles controlling the foot which is present in the particular case. If only one muscle group is powerless, thus allowing the antagonistic muscles to act at an undue advantage, some of the simpler methods such as tendon transplantation may be applicable. On the other hand, where all the muscle groups are paralyzed, and where by force of gravity the front of the foot drops down interfering with walking, more radical measures are necessary. This operation described by Dr. Packard was first devised by Dr. Whitman for calcaneus and calcaneo-valgus deformities, but gradually it has become recognized that it is applicable to many of the other deformities of the foot, particularly the flail, or dangle foot, in which all the muscles of the foot are powerless, and in which the foot drop interferes with locomotion and there is marked lateral instability. The removal of the astragalus followed by the modelling of the soft parts, thus allowing the foot to be placed further back on the leg, restores, to a considerable extent, the balance of the foot and allows it to be used much more advantageously as a support and as a means of progression. The criticism has been made that it is a mutilating operation, but if by removing a part of the foot better functional use is obtained it seems to me that the term reconstructive would apply more accurately. Another criticism which has been made is that the leg is made shorter. This shortening is never over one-half inch and is compensated for by the position of equinus and valgus in which the foot, following operation, should always be placed. Further, the shoe can be built up to a slight extent to make up for any shortening caused by the new position of the leg bones in relation to the foot.

I have had the opportunity to observe the cases reported by Dr. Packard, both before and since operation, and can testify that in all of them the result was a more stable and better functioning foot.

**Fosdick Jones, Denver:** I have been greatly interested in hearing Dr. Packard's paper on this important subject, and there is one point which I wish to mention in the treatment of these cases of infantile paralysis in which the deformity as a result of paralysis is that of equinus.

Gallie of Toronto has been using, in these deformities, fascia lata to hold the paralyzed foot in the right angle position. He has demonstrated that fascia lata has great tensile strength and does not stretch when used to replace paralyzed muscles.

In the paralytic deformities resulting in equinovarus or calcaneo-valgus, astragalectomy is the most satisfactory operative procedure. The Whitman operation is the one of choice and I wish to emphasize a most important point in the operation: that after the entire astragalus has been removed the foot must be replaced backward, and the foot held in the position of equinus, using a plaster of paris dressing extending up the thigh with the leg in flexion. After a period of about eight weeks

this plaster dressing is changed to one applied below the knee and, the foot being still held in plantar flexion, the child is allowed to walk. This plantar flexed position should be maintained for several months.

The after treatment in these cases following astragalectomy is most important and too much emphasis cannot be placed upon it if we are to obtain satisfactory results.

### CAPSULOTOMY VERSUS INTRACAPSULAR METHOD IN SENILE CATARACT EXTRACTION.\*

HENRY M. THOMPSON, M.D., AND JOHN W. THOMPSON, M.D., PUEBLO.

The laity accepts the onset of cataract and its advancing visual impairment with a large degree of alarm. The uninformed profession adds to their fears by allowing conflicting conclusions as to the dangers of operation and the belief that a lens must be "ripe" before operation is possible. In addition, a few followers of the intracapsular (Smith-Indian) method of operation confound both the lay and professional mind by repeatedly advocating this method of operation as the better of the two, although the premises in the argument will not justify so favorable a conclusion.

#### SMITH-INDIAN PROPAGANDA.

We would hesitate to bring this oft repeated subject before you, if it were not that the profession is being bombarded incessantly by intracapsular propaganda. These enthusiastic cohorts mostly visit India, operate with Col. Smith and return with their portfolio of agenda gained from having done so many intracapsular expressions under the supervision, tutelage and smoke screen of the recognized master. They dispense, to the profession, data of their results and dilate upon their improvements in the Smith method of operating. Our congratulations are extended and we envy them this opportunity. But when they proclaim results on their American patients with the uniform Smith-Indian method far excelling those of the rest of us, their declarations cannot be substantiated by a careful analysis of reported cases. Then, too, they do not always state in their series how many successful cases had the capsule ruptured and were delivered in the usual way. One of us has witnessed such instances. It is stated by intracapsular operators that if the lens fails to present on pressure, they resort to the capsule forceps. This is logical. They could not do otherwise without being frankly indifferent to the welfare of the patient. The existent mutual desire to obtain the best final result in the largest percentage of cases in this most delicate and refined surgical procedure is most obvious. We are in the habit of making an effort with safe pressure and traction on the capsule to remove the lens in toto. In a limited number of cases the effort succeeds. Such a result is highly satisfactory, but we have not exposed the patient to any extra hazards. Neither have we heralded the intracapsular removal as an unusual accomplishment.

Dr. C. F. Clark, formerly a Jullundur Clinic

\*Read at the annual meeting of the Colorado State Medical Society, October 5, 6, 7, 1921.



assistant, well decries the phase of this propaganda now prevalent. He says, "One cannot refrain from giving expression to his indignation when he sees this wonderful and beneficent operation" (It would be well to add, "in the hands of Col. Smith") "made an instrument of base commercialism by some of its advocates. With my knowledge of Col. Smith's high personal character, his innate vigorous honesty and deep scorn of anything approaching commercialism in the practice of the medical profession \* \* \* there have been instances in which the choice between the old operation and the new was left to the patient, but with a considerable difference in the fee in favor of the Smith-Indian operation. It does not require the services of a psychologist to fathom the depth of the process of reasoning which is involved in such a transaction". It is better that a pilgrim of Jullundur give vent to the sentiments we harbor.

#### The Inconsistencies of Statements.

Smith says, "Intracapsular extraction is only within the range of men who have had high class technical training in the art. It is a difficult operation." Fisher remarks, "But a method will be described by which any operator may become proficient in its use without having subjected a single patient to the dangers incident to operation by a novice." Vail, "There is nothing to it." This was in answer to Col. Smith when he inquired, "What do you think of the operation?" Smith claims that in the capsulotomy operation the cataract should be mature. He has evidently not investigated as to when the eye surgeons of this country deem it best to operate. We operate early, as soon as the patient's vision is impaired to a sufficient extent to produce a noticeable ocular infirmity. If we waited for so-called maturity, most cases would transcend this mortal framework before we had opportunity to extend a helping hand. Those remaining, having mostly become infirm, we would be grateful to be able to pass on to the next operator. Smith adds, "After-cataract follows the capsulotomy operation, and requires to be operated upon." In our series of cases reported herewith, needling was done in less than ten percent of the cases. It is becoming rather an exception, and with better capsule forceps, the number of cases requiring secondary interference will be negligible. Of O'Connor's series of forty cases, only eight required needling, and even these had mostly 20/30 vision without the secondary operation. An apparent secondary membrane forms at times after intracapsular extraction. Smith, when questioned, admits these occurrences. Jackson in review of the subject, suggests that the Smith-Indian method "will not be accepted because operation for "capsular" or "after" cataract is always required or is dangerous \* \* \* but since the introduction of the knife needle through the vascular limbus rather than the clear cornea has been practiced, the operation is practically devoid of danger from infection." Most operators do not agree with Smith that iritis is a frequent complication after capsulotomy. Five percent of our cases developed iritis, two and five-tenths percent of O'Connor's cases. We do not think

any method can show more freedom from iritic disturbance. Smith adds that "Vitreous escape in skilled hands is about the same in both operations." One small vitreous loss occurred in our series. In this case there was a marked posterior synechia. O'Connor's cases were free from this accident. This is in marked contrast with eighteen cases of Greene's 106 and thirty-eight and eight-tenths percent in Smith's cases operated at the Wills Eye Hospital. Smith's assertion that sepsis occurs more frequently in the classical operation due to tags of the capsule is open to question. Inasmuch as reports of cases mostly ignore infections, we are not in a position to rebut the accuracy of this claim. Barraquer, using his erisiphake, mentions two infections in 1,000 cases. There is no mention of infections in Greene's 106, unless you wish to consider a chronic uveitis with the broken point of a knife in the eye. In Fisher's report of 94 cases he mentions iridocyclitis in three cases. Fisher states that he had three pus infections in 576 operations performed in India. Again he says he did 600 operations in India and states ninety percent of the Indians have trachoma. Remarkable! They seem particularly fortunate in their freedom from infection, notwithstanding that the larger incision predisposes, through its incumbent traumatism, to both extraneous and hematogenous invasion. When you consider the decreased general resistance in this class of individuals and the susceptibility of the ocular mechanism to germ growth, this freedom from serious infection is the more phenomenal. Vail, for whose skill and ability as an operator we have a high regard, writes, "Smith's success is largely dependent on the help his superb Mohammedan assistant, Nur Ali, renders in controlling the eyelids." Fisher, on the other hand, attempts to impress us with the ease with which any nurse can be taught the proper technic and developed into an able assistant. Which of you will make a decision on this mass of contradictory assertions? Form your own conclusion.

#### BARRAQUER'S PHAKOERISIS.

Vard Hulen, some ten years ago, developed a mechanism for removing the lens in toto, by producing a vacuum through a cup affair which attached itself to the capsule. Barraquer has perfected such an apparatus which, through its continuous suction on the lens and rupturing the fibres of the zonula by a vibratory action, can extract the whole lens without traction on the ciliary body or dangerous pressure on the globe. The apparatus is difficult to construct and the application most tedious. Intelligent judgment will await a more simplified development and further evidence of satisfactory results. The procedure has not surmounted the objectionable large incision which exposes the eye to destructive complications.

#### OUR PREPARATORY DETAIL AND OPERATIVE PROCEDURE.

Little things are of least importance unto themselves. To the whole, they loom large, for without careful mastery of detail the general results of any achievement are not especially brilliant. With some hesitancy, we propose to out-



line our method of preparation in senile cataract work. Not that it is original, or unusual, but rather to show that cataract extraction can be brought to a satisfactory state of perfection with a small number of cases. Colorado is a young state, the population from which we draw our practice is limited and covers a broad area. When we see series of cases reported from the larger centers, which do not particularly outnumber ours in Pueblo, we offer no apology. We are proud to match our forty cases with twenty-three of Sternberg of Boston, forty of O'Connor and 106 of Greene of San Francisco and the ninety-four of Fisher of Chicago, both in number and results.

1. When a patient with a cataract presents himself at our office, we are careful to cover his history minutely. Special reference to the vision in earlier years is made to determine, if possible, whether normal vision was present in each eye. If the cataractous change is unilateral, was the vision in this eye normal or equal to the other eye? An amblyopic eye may give you good light perception and projection. After operation, an excellent mechanical result is obtained, but vision remains greatly impaired. These same possibilities are present with an atrophic disc, retinal and choroidal changes, dense vitreous opacities and chronic glaucoma. Whether the opaque lens is a nutritional aberration or a definite pathological lesion, these changes may have extended beyond the contents of the lenticular body, involving other structures in the ocular mechanism and thereby rendering a questionable prognosis, notwithstanding a perfect mechanical result. Therefore, a careful historical consideration of the ocular and physical condition of the patient is essential to a full understanding of the case. A completed fundus with marked visual destruction does no credit to a clear pupil. Vision is the first requisite in the mind of the patient.

2. The success of the operation depends quite as much on the physical fitness of the patient as on the perfected detail of the technic. This phase of the subject is too often ignored, as is evidenced by the lack of attention which a patient usually receives before operation both by the surgeon in private practice, and particularly the clinic in the larger centers. Volumes are written on the refinements of technic, but little is said concerning the physical and mental preparation for operation. General arteriosclerosis with high blood-pressure, constipation, insomnia and nervousness can be markedly benefited by calomel, salines, hydrotherapy and occasionally a hypnotic. Place a patient of this kind under treatment for a week or a month if necessary and parallel the results with those obtained on this class of cases who are operated without this care.

We are in the habit of giving bicarbonate of soda for a number of days and immediately preceding the operation, administering castor oil for elimination and later retardation of the bowels. The secondary constipating effect of this purgative is most valuable in that the case will not be too early disturbed.

3. We train our patients. We develop their confidence and cooperation. Give us an individual accustomed to manipulation of the eye, and after we have obtained his absolute trust we have a fifty percent assurance on results. Specula and lid retractors are introduced at first with cocain, later without, in the eye not to be operated on. When the patient endures manipulation of the globe without cocain, does not "squeeze", and is obedient to instruction, he has developed a control which will greatly assist the operator. When convenient we have him witness an operation. This will demonstrate definitely that the procedure is reasonably painless. Invariably this patient approaches the operation fearlessly and with confidence.

4. The brow is shaved, as a rule, but the lashes are allowed to remain. The latter are touched with a two percent nitrate of silver solution. With a cotton tipped probe a fifteen percent solargentum solution is rubbed over the conjunctiva and extended into the fornix. The lachrymal sac is inspected and necessary precautions are taken if indicated (viz: extirpation of sac). A smear should be made of all cases. If there is any suspicion of infection a culture should be grown. At the time of operation the assistant cleanses the field with soap and water, followed by sterile saline. After properly drying a largely diluted solution of iodine is applied to the immediate area including the lids and lashes. If carefully touched with sterile gauze, faintly stained with iodine, it causes no burning and can do no harm. The conjunctival sac is flushed with twenty percent solargentum solution followed by normal saline.

5. The operation is performed in the patient's room on a bed suitable for the occasion. He is not disturbed after the extraction and, if uncomfortable, is given a mild hypnotic. Unfortunate mishaps have followed the moving from the operating table to the bed. This occurred with one of us in the first few years of practice. After a completed and gratifying cataract removal, the patient was lifted from the operating table to the cart, taken to his room and transferred to the bed. He complained of a sharp pain, but soon became comfortable. The nurse reported a quiet night, but pain early the next morning. On removing the dressing, the upper lid was found covering the open segment, pushing the flap of cornea downward. It was readily replaced, but infection ensued and the man suffered a long and painful inflammatory process before he would consent to enucleation. It was a perfect operation, on a model patient of advanced years, but the disturbance of the transfer undid what would otherwise have been, most probably, visual restoration.

6. Only local anesthesia is safe. This should be used to excess rather than limited. We use a four percent cocain solution at intervals over a period of ten minutes in the eye to be operated on and one drop is instilled in the other eye. Both eyes should be kept closed after instillations. Desquamated corneal epithelium is of no moment compared with vitreous loss. Formerly Fisher advocated using one instillation

of a two percent solution in each eye, waiting three minutes and finishing the operation. After this impossible and dangerous extreme, he jumps to the other and injects subconjunctivally. The confession is significant. It increases the virtues of conservatism.

7. There should be reasonable quiet in the room during operation. It is well that the surgeon talk to the patient. Absolute silence is not golden here; it is disturbing. During the long ten minutes wait, explain to the patient how to relax. Uneasy is the patient who has time to think of what is coming. Reassuring words help greatly. Before the iris is caught, suggest that there may be only a slight pain, etc.

#### Controlling the Lids.

We have been in the habit of using a Wills speculum which, held away from the globe, has answered our purpose well. With a properly trained assistant, the lids can be nicely controlled and held from the ball. A cataract operation done by any method is not safe in any hands without a trained assistant. However, we are trying Smith's method of managing the eyelids with Vail's modified retractors. These maneuvers have the distinct advantage, apparently, of controlling the strong group of muscles surrounding the eye, particularly the orbicularis palpebrarum, without the help of the patient. In thus eliminating any help from the patient, the procedure on unruly persons or those unable to understand our language is greatly simplified, and the safety factor largely increased.

#### Operative Technic.

Jackson well says, "Of devising many operations, there is no end, and much study of them is certainly a weariness of the flesh." We heartily agree, and, therefore, do not propose to review any actual technic of the operation. We have given details of preparation, which we believe are often omitted to the disadvantage of the patient. Probably since the time of Daviel, there has been an old saying, "As the incision is, so is the operation." Use the iris according to personal wish. Make a broad and sure capsulotomy (anterior capsulotomy) and a safe extraction is often accomplished in capsule aided by traction with the Kalt capsule forceps. Use mild irrigation if necessary; make a proper iris replacement with other features of careful toilet and you have completed the most refined and delicate operation in the surgical field.

#### After Treatment.

If the eye is comfortable, the dressings are removed after forty-eight hours. One percent atropine and fifteen percent solargentum solution is carefully instilled; dressings are reapplied. On the third and fourth day, bandages are removed from the nonoperated eye. Usually a mask is worn at night for some weeks after operation.

#### Comparative Results.

Smith claims that the escape of under one-third of the vitreous is not of sinister consequence. Most operators would rest easier with that complacency of belief. Admitting that proof is not present to show that vitreous does not

renew, it is a general knowledge that ocular function is largely impaired after vitreous escape. The impairment in most cases increases with time, due to progressive degenerative changes in the fundus oculi. During the first three years of practice, which years are not included in this series of reported cases, one of us experienced vitreous loss in three instances; two due to unruly patients, one of whom had senile dementia, the other to liquid vitreous with a previously dislocated lens. Two evident faults aided in these losses, namely: untrained assistants and failure to properly appreciate the details of preparation. The following consecutive series of cases includes mostly those operated since our records were destroyed in the Swift block fire in Pueblo some seven years ago. There are three cases whose records I am unable to locate, all of whom had better than 20/30 vision. Appreciating, therefore, the seriousness of vitreous loss, let us compare the end results of the two operations. In Greene's series, 18 cases of vitreous loss out of 106. It is significant that in 18 cases with less than 20/30 vision, seven suffered vitreous prolapse. In a personal communication with Dr. Wm. Zentmayer, we are informed that in a series of 18 cases operated recently at Wills Hospital by Col. Smith, the vitreous loss was thirty-eight and eight-tenths percent and prolapse of iris occurred in thirty-three and one-third percent of the cases. Col. Smith was assisted by the surgeon to whom the case belonged. In other words, his dexterous Nur Ali, the Mohammedan assistant was not a factor in these results. We must of necessity consider that, in the absence of Nur Ali, Smith enjoyed the assistance of highly skilled and trained operators, some of the best men in America. Notwithstanding this fact, behold the vitreous escape, admittedly the most serious complication in cataract work. We only inquire as to what would have happened under the same conditions to the man who had been a pupil of Smith's for a short time. The mechanical mishaps to the Smith-Indian operation also compare unfavorably.

#### OUR UNCOMPLICATED CASES.

Age of Patient	Eye	Vision
50.....	O. S.	20/15
57.....	O. D.	20/15
63.....	O. D.	20/15
80.....	O. S.	20/15
41.....	O. D.	20/15
78.....	O. S.	20/20++
64.....	O. D.	20/20
79.....	O. D.	20/20++
60.....	O. S.	20/20+++
65.....	O. D.	20/20+
62.....	O. D.	20/20
66.....	O. S.	20/20
60.....	O. D.	20/20?
60.....	O. S.	20/20?
73.....	O. D.	20/20+++
65.....	O. D.	20/20? iris prolapse
60.....	O. D.	20/20??
67.....	O. S.	20/20++
53.....	O. D.	20/20
41.....	O. S.	20/20 (small iris prolapse)
—.....	O. D.	20/20
78.....	O. S.	20/20?
58.....	O. D.	20/20
42.....	O. S.	20/20
67.....	O. D.	20/20
76.....	O. S.	20/30
50.....	O. D.	20/30
—.....	O. D.	20/30



75.....O. S.	20/30++
84.....O. S.	20/30++
76.....O. S.	20/30
74.....O. S.	20/40
75.....O. S.	20/40
75.....O. S.	20/60
69.....O. D.	20/70
57.....O. S.	20/100
74.....O. D.	20/20 (unfinished)
84.....O. D.	Clear pupil (unfinished)
70.....O. D.	Clear pupil (unfinished) vitreous prolapse
63.....O. S.	20/40 Needling necessary
70.....O. D.	20/20 (unfinished)

The following complicated cases were operated during this period. Two, choroidoretinitis; three, hemorrhagic retinitis; one, expulsive hemorrhage occurring six hours after operation; one, died of senile gangrene about ten days following extraction; one, died of post-operative delirium; three, developed secondary glaucoma some weeks after operation, one of whom had 20/20 vision, the other two were unfinished; one, with marked corneal opacity; one, on a diabetic, amblyopic eye; one, senile dementia with hemorrhagic retinitis; two, coloboma of the iris.

Three other cases whose records are lost had 20/30 vision or better. We mention these complicated cases to prove we are including all of our cataract operations.

The above results speak for themselves without stating further details.

#### O'CONNOR'S UNCOMPLICATED CASES (40) COMPLETED.

There was better than 20/20 vision in seventy-two and five-tenths percent. Five percent had 20/25 and twenty percent, 20/30, making a total of ninety-seven and five-tenths percent with 20/30 or better. Four cases showed an iris prolapse at first dressing. These were mostly corrected and the resultant vision was 20/20 or better. There were four mishaps at operation, none of which resulted harmfully. Five of the 20/30-cases had a faint pupillary membrane. Needlings would most probably have placed them in the 20/20 class.

Summary of Greene's uncomplicated cases, according to O'Connor's report: 20/15, 40 (37.7%); 20/20, 24 (22.6%); 20/25, 9 (8.5%); 20/30, 15 (14.1%); 20/40, 6 (5.5%); 20/60, 4 (3.7%); 20/80 1; 20/100 3; 20/120 1; 20/200 1; 10/200 1; 1/200, 1. Total, 106, 82.9% 20/30 or better.

"Altogether forty-five percent of serious mishaps in eighteen cases reducing the vision in varying degrees from 20/40 to 1/200. Compare this with our ten percent of mishaps, all of which finally wound up with 20/20 or better."

The results of the eighteen cases operated upon by Col. Smith at the Wills were most unfavorable and do not speak well for the intracapsular method. Of the thirty-eight and eight-tenths vitreous loss, it was large in two, moderate in one and slight in four. There was iris prolapse in four cases and entanglement of the iris in the wound in two, or thirty-three and one-third percent. The visual results as compiled by Dr. Beiderman, the senior house surgeon at the Wills, gives 20/20, 2; 20/30, 2; 20/40, 2; 20/50, 3; 20/70, 3; 20/100, 1; 20/200, 1; 10/200, 1; no improvement, 1; no

record, 2. Zentmayer writes, "To be perfectly fair to Colonel Smith, I think it should be stated that he had no opportunity to examine these patients previous to operation, that he was handicapped by not having trained assistants," etc.

In Parker's recent reported series, vitreous loss occurred in six and four-tenths percent with simple extraction; ten and two-tenths percent in the Knapp operation, and nineteen and seven-tenths percent in the Indian operation.

Smith says Dr. Parker "is a novice in the procedure." Give us the novice rather than the expert. Smith presses the vitreous out and the Barraquer apparatus sucks it out. We will follow the more classical method, so called, and preserve the vitreous as far as is possible.

#### CONCLUSION.

The high percentage of vitreous loss, iris prolapse and other accidents, even in Smith's hands, are so objectionably in evidence, that the conclusion of most American operators is that the intracapsular extraction must be made safer to render it a desirable and acceptable procedure. The patient goes to the ophthalmologist for restoration of vision. He is not interested in method. It is our duty to consider "safety first" and follow the method that offers the highest percentage of satisfactory visual results.

#### DISCUSSION.

**Melville Black, Denver:** I wish to commend the Doctors Thompson for their splendid paper. Whenever an operator says that a small loss of vitreous is not of any particular consequence, he is simply trying to encourage himself to believe that he has not done the patient any particular harm. As a matter of fact, very shortly following the operation the visual result, after a loss of vitreous, is very good. Watch that case for a few years and you will find more deterioration in vision than you will in the case that has had no vitreous loss. As a matter of fact, we all know down deep in our hearts that vitreous loss is a very serious matter, and a thing certainly to be avoided if possible. Any operative procedure which increases that risk, decreases the patient's chances for a good visual result. Operative work in the Indian district by Colonel Smith is upon a class of patients that are considerably younger than come to operation in this country. Our operative work here for cataract has been upon patients that are beyond sixty mostly. Once in a while you get a case in a comparatively young person, but the most of them are beyond sixty, and a great many of them beyond seventy, and I have operated upon a number that were in the eighties; and I venture to say that this probably may make a difference in the vitreous loss. The pressure required to bring a cataract out in its capsule is very great. Anyone who has ever watched the two operations will be surprised at the amount of violence the eye is exposed to in removing the lens and its capsule. I remember the first time I saw it done; I thought, "For Heaven's sake, the amount of pressure here is absolutely too much for any eye to stand and come out with a good result." Every once in a while we get a delivery of the lens in its capsule unintentionally, and we are very pleased with the beautiful, black pupil, and it makes us feel that if something could be invented in the way of an operation which was unattended with the dangers of extraction of the lens in its capsule, that would be the ideal procedure. Barraquer in the invention of his erisiphake was secondary to one of our own confreres in this country. Dr. Hulin proposed such an operation at a meeting of the American Medical Association in Los Angeles a number of years ago, and reported some results from his method, but he never perfected it—abandoned it, apparently—and it was Barraquer who finally brought the thing to its present state of perfection. If you can grasp hold of the capsule with a suction apparatus that is safe and lift it out without pressure and without loss of vitreous, then you have the ideal pro-



cedure. I don't know whether the thing is going to work or not. I have one, but I have not yet used it. I will have something to report about it later.

**F. R. Spencer, Boulder:** We have tried extracting the lens in capsule in a number of cases; I think, all told, approximately fifteen. I do not believe we have been able to extract the lens in its capsule in more than fifty percent of the cases. I have felt very much as Dr. Elack just stated he felt—that if I have to subject an eye to too much pressure I would rather not take too great a risk, and would rather extract the lens, leaving a part of the capsule. I have watched Verhoeff use his forceps in grasping the lens capsule and extract the lens with its capsule in toto, and I have used this method. I believe it is some help, although it does not succeed in the hands of the average operator as well as it does in Verhoeff's hands. It seems as I have watched him operate that he probably succeeds in getting the lens in its capsule in a high percentage of his cases, although I am not prepared to say what the exact percentage is. My partner had an opportunity last spring to see him remove the lens in its capsule by a suction method, but I do not believe Verhoeff is at the present time prepared to make any statements regarding this method. There is one objection to this, and that is there is some danger of loss of vitreous by the suction method, because it does not always stop when the lens begins to come out; although this offers a better opportunity of avoiding vitreous loss than by expelling the lens by means of pressure. I do not know whether Dr. Thompson has had any experience with a three percent solution of cocaine, or not, for eye work. Haab demonstrated some years ago that a three percent solution of cocaine in water can be sterilized by boiling for a few minutes without destroying its anesthetic properties. For all our cataract extractions, and for any operation involving the interior of the eye, we use such a solution. It should, of course, be freshly prepared, and then sterilized by boiling for a few minutes. If it is prepared with sterile, distilled water and under the greatest precaution, it will not require boiling for more than three minutes. Haab says there is some difference in the chemistry of a three percent solution and that of other strengths, because the other strengths will not stand boiling. Verhoeff and some other operators often drop one or two drops of cocaine inside the eyeball after the incision has been made, prior to the iridectomy, to avoid the pain which sometimes makes the patient clamp the lids. Usually this is not necessary, as the iridectomy will not be painful with good anesthesia, and the increased manipulation from the instillation of additional cocaine can be avoided.

I believe many of you who are doing eye work have had a letter from Dr. McReynolds of Dallas in the last few months, asking for your data concerning the results from your own experience with intracapsular extraction. Probably McReynolds is going to gather some statistics, as Dr. Thompson has done, which will have a definite bearing on this subject. Most of us, I believe, feel this operation is still more or less in the experimental stage and that we need a more perfect method for extraction of cataract than we have had to date.

**J. J. Pattee, Pueblo:** I wish to emphasize two or three things which the doctor also puts emphasis upon in his paper. One of them is the preparation of the patient. I think that in any operation as delicate as one upon the eye, where the area is so small and the instruments used are so sharp and the structures are so sensitive, we can not have too high a degree of cooperation with our patient. The training of the patient beforehand, I think, cannot be done by any arbitrary rule. For instance, sometimes I think we train the patient too long, and yet it takes a certain amount of time in every case; but if the period is made too long, you make the patient nervous about that for which you are trying to alleviate nervousness. The anesthetic, on account of reasons I have given—that is, the need of cooperation—is very important, and I have the feeling that a great many times in the ophthalmologist's early practice he is a little bit too conservative in his anesthetic, and in that regard I am sure Dr. Thompson is absolutely correct, because no matter how skillful the operator may be, no matter how well the operation may be planned, if a patient acts badly, the operator is up against it. Now, one may get out of a nine hole better than another, but all of you will have trouble in getting out if the patient acts absolutely badly; so I make it a rule to assure the patient that if he will absolutely follow my instructions there will be no pain. There may be some exceptions to that, but I do not tell those exceptions.

I believe we can make those operations almost painless. As for the incision, I think that is very important. I shall not go into the technique, but I do think that a good start, with a good incision, and a patient that will cooperate, and an iris that is anesthetized, go a long way towards getting a higher percentage of successful results.

**Edward Jackson, Denver:** I have not attempted to use the Smith-Indian operation, and have not been favorably impressed with it, for the reason that applies to all methods of intracapsular extraction—they require a longer incision in the eyeball. It is generally the case that the shortest incision with which you can do the necessary work gives you the quickest and best healing; but this is peculiarly so with reference to the eyeball. It is illustrated in the difference of feeling we have about iridectomy and cataract extraction. Iridectomy opens the anterior chamber, removes a piece of the iris, and certainly causes a major portion of the injury to the eyeball that a cataract extraction does. The opening of the capsule or even, perhaps, the intracapsular removal of the lens, is not the cause of injury and danger to the same extent as is the lengthening of the corneal incision.

The iridectomy incision of six to eight millimeters, running up to not more than ten in extreme cases, leaves iridectomy an almost perfectly safe operation. We regard it as having very little danger attaching to it; in fact, a very large proportion of ophthalmic surgeons are willing to do preliminary iridectomy for cataract extraction, and many of them say that is the only way they would have the cataract taken out; they would have the iridectomy done as a preliminary operation, on the ground that it is an absolutely safe procedure, and the statistics pretty nearly bear that out. The preliminary iridectomy has been done many, many times, and safely. But, subsequently, in the same eye, apparently under as favorable conditions, extraction has resulted in the loss of the eye.

The difference is very largely a matter of the length of the corneal incision and the possible displacement of the tissues inside of the eye because of the long corneal incision. Now, the corneal incision for an intracapsular extraction must be one or two millimeters longer than the incision for an extraction by capsulotomy, and so long as that is necessary, to my mind that increased length of the corneal incision required is enough to condemn the intracapsular extraction. That will apply to the Barraquer operation, the suction operation or any operation of that sort.

**J. W. Thompson, Pueblo:** The advocates of the intracapsular operation make large complaint against the secondary capsulotomy. During my eighteen months' internship at the Wills Hospital, in Philadelphia I did not see an eye lost from the results of secondary capsulotomy. There were reactions of varying degrees, however. With the present Ziegler knife needle the chances of trauma are minimized, and if inserted through the limbus the possibilities of infection are practically nil. The necessity of secondary capsulotomy often depends upon the man doing the operation, his steadiness and fearlessness. If the operator takes his time and either removes a goodly portion of the anterior capsule with the capsule forceps or cuts out a pupillary area with the cystotome, his percentage of secondary operations is reduced. I believe the percentage of capsulotomies necessary after combined or simple extraction is given too high. My experience at the Wills would seem to show for some men it was as low as ten percent, for others higher, depending on whether or not the man was satisfied with 20/30 vision.

When the intracapsular operation is mentioned I often think of the answer Dr. William Campbell Posey would give the onlookers and students when asked about the intracapsular operation: "We men in America at most do only thirty to possibly fifty cataract operations a year. We know we are doing the safest possible operation in the combined extraction; it has stood the test of time. Why discard it and learn a new method that is more hazardous to the visual possibilities of the patient, which we know the intracapsular operation subjects the patient to? It may be perfectly all well and good in the number of cataract operations and the race with which Smith has to deal, but the method must be made more safe for the American patient."

**William H. Crisp, Denver:** To get a good result from a cataract operation two things are particularly essential. One is as neat surgery as possible, and the other is being sure that you have not a focal infection somewhere in the patient's system. The neatest possible surgery is necessarily favored by thorough anesthesia, and I support the



statements that have been made as to not being afraid to use enough anesthetic. I particularly like the rather free combination with cocaine of adrenalin, because the adrenalin seems decidedly to augment the action of the cocaine. Using adrenalin with cocaine, and with perhaps as many as four or five instillations in the course of twenty minutes, I always get practically complete anesthesia. Even during the iridectomy, the patient usually complains very little. Another essential is that your instruments shall be sharp. That goes without saying as regards the primary incision with the knife. But we are perhaps not so careful that the scissors with which we make the iridectomy are sharp, and in the eye a much more objectionable trauma is produced with blunt instruments than with sharp ones. I believe in making a large conjunctival flap. Closure of the wound occurs more rapidly after the use of a liberal conjunctival flap. It is of course necessary to have the cooperation of the patient, and I believe the point as to training the patient beforehand by a rather free use of instruments, specula, etc., about the eyes at some time prior to the date of operation is a good one. If the patient is altogether too irritable to allow of a neat operation, a modified dosage of "twilight sleep", that is of morphine and hyoscin, may be resorted to. That is probably better than the use of a general anesthetic in the majority of such cases. A large capsulotomy with capsule forceps is very beneficial. There is usually nothing to fear from a needle operation done with a sharp knife needle and, as Dr. Jackson has particularly recommended, through the well nourished tissue at the limbus, instead of through the more central and entirely avascular part of the cornea.

**F. E. Wallace, Pueblo:** Dr. Parker of Detroit has recently published some statistics in relation to operations by the various methods, including the Smith-Indian operation. He gives it as his opinion that the combined operation is the best and safest procedure. I believe I am safe in saying that ninety percent of the bad results in cataract operations come from iridocyclitis rather than from the accidents that might happen at the time of the operation. Keeping in mind our knowledge of iridocyclitis, I conclude, therefore, that the greater percentage of these cases come from an autogenous toxemia rather than exogenous infection. From the fact that cataract formation occurs in people at the time of life in which there is present the greatest toxemia, it follows that the focal toxemias are more apt to occur. Therefore, we should take more time in preparing our patients for these operations and put them in much better physical condition. Even if it takes a month or two of preparation, and if we must put them on a special diet such as lactone milk, or any other sort of treatment that is advisable for the purpose of getting the system into best possible shape, I believe we will have better results.

**H. M. Thompson (closing):** It appears to me that there have been two occurrences recently which argue adversely for the Smith-Indian method of operation. One, Colonel Smith's results at the different clinics in this country; the other, a former pupil of Smith's, a strong advocate of the Indian method, going to Barcelona with the hope that Barraquer's method with suction would eliminate the dangerous pressure necessary on the Smith intra-capsular extraction. The Smith-Indian advocates are fighting hard to keep above water, but the results are pushing them below the surface. In fact, the intra-capsular procedure, as performed by Smith, has about closed its last chapter and finished its career in this country.

## News Notes

Dr. G. L. Wyckoff, who has been practicing in Loveland for the past few years, has been appointed medical supervisor for the Sioux Indians in South Dakota, and will soon leave for his new post.

Dr. J. U. Sickenberger of Grand Junction has returned home after a six months' visit at eastern clinics.

Dr. Charles A. Powers of Denver successfully underwent an operation for strangulated hernia November 18. Dr. Powers' period of convalescence will undoubtedly be shortened by the gratifying news received December 1 that he has been awarded the decoration of the Legion of Honor by the French government for services rendered in France.

Dr. John R. Barber of Boulder in November sev-

ered his connection with the United States Public Health Service by resignation.

A number of cases of infantile paralysis have occurred in Boulder during the past month.

A long fee bill adopted by six doctors of Yuma, Colo., was commented on at length in a recent issue of a Denver paper. The bill establishes a minimum charge for all sorts of professional service, and the last paragraph of the resolution states that "all past due accounts must be settled in full before any of the undersigned physicians will render further services". It might be interesting to the public which characterized this as the work of a medical trust to know that not one of these six doctors is a member of that gigantic "medical trust," the American Medical Association.

The secretary has had numerous requests from doctors seeking locations in Colorado and would welcome suggestions from anyone who knows of localities where doctors are needed or could locate to advantage.

Dr. A. J. Markley of Denver returned early in December from a three weeks' vacation spent in California.

At a meeting of the Children's Hospital staff, Denver, held November 30, a tentative constitution and by-laws was adopted with a view to completing standardization of that hospital.

Dr. Dare Woodruff, formerly of Sterling, has recently located in Denver for general practice, with offices in the Tabor Opera House Building.

Drs. Robert G. Packard and W. H. Halley, both of Denver, have recently returned from a four weeks' trip East, on which they visited clinics at Rochester, Chicago, New York and Philadelphia.

A medical student of two years, now living close to Denver, would like a position as laboratory assistant.

Physicians recently located in Fremont County are: Drs. T. J. Foran, Howard; A. J. Baker, Florence; W. S. Butterbaugh, Coal Creek; and Dr. Smith, Pyrolite.

A doctor, with an unopposed practice, within fifty miles of Denver, is leaving for a larger field and would like to dispose of his home to a successor. Details can be learned from Dr. C. S. Elder, 802 Majestic Building, Denver.

On November 29 Dr. S. R. McKelvey, surgeon, U. S. P. H. S., gave a dinner at the Adams Hotel for all the members of the State Board of Health and local health officers over the state. Various public health problems, especially those connected with the state administration of public health matters, were discussed and the result of the meeting will undoubtedly be improved cooperation and a better understanding generally of public health needs and methods of meeting them. The editor was one of a number of guests invited from outside the fold and regrets his inability to be present.

Dr. P. D. Rothwell of Denver was seriously injured in an automobile accident on December 2. There seems to be still some doubt whether a fracture of the skull was sustained. There was rupture of the ear drum with hemorrhage. At the date of this writing Dr. Rothwell is rapidly improving.

Dr. W. W. Wasson of Denver was in Chicago early in December attending the annual meeting of the Radiological Society of North America, held December 7, 8, 9, 10.

Dr. Sanford Withers, formerly of the Barnard Skin and Cancer Hospital of St. Louis, has recently located in Denver and is now associated with Dr. A. J. Markley. He will devote attention particularly to radium therapy.

## DEATHS.

Dr. S. S. Butler, a member of Las Animas County Medical Society, died at his home in Hoehne, where he had recently moved from Grey Creek. Dr. Butler practiced, among other places, in Old Mexico before locating in Grey Creek. Death followed an operation for appendiceal abscess.

## NEW AND NONOFFICIAL REMEDIES.

During November the following articles were accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

G. W. Carnrick Co.: Amylzyme capsules.

Merck and Co.: Bromipin 10 per cent; Iodipin 10 per cent tablets.

Powers-Weightman-Rosengarten Co.: Theobromine, P. W. R.

Schering and Glatz: Xeroform S. and G.

E. R. Squibb and Sons: Diphtheria Immunity Test (Schick Test)—Squibb; Diphtheria Toxin-Antitoxin Mixture—Squibb.



# List of Members of the Colorado State Medical Society

December 1st, 1921

## HONORARY MEMBERS.

Adami, J. G., M.D.	Montreal, Canada
Dodge, H. O., M.D.	Boulder, Colo.
Elsner, John, M.D.	Denver, Colo.
Farrand, Livingston, M.D.	Ithaca, N. Y.
Hawkins, T. H., M.D.	Plainfield, N. J.
Lawney, Eleanor, M.D.	Denver, Colo.
Ramaley, Francis	Boulder, Colo.
Schneider, E. C., M.D.	Colorado Springs, Colo.
Scott, I. D., D.D.S.	Boulder, Colo.

## ACTIVE MEMBERS.

Name.	Postoffice.	Constituent Society.
Abelio, J. M.	Denver	Denver
Aberg, A.	Alamosa	San Luis Valley
Abrahams, H. E.	Trinidad	Las Animas
Adams, E. S.	San Antonio, Texas,	Las Animas
Adams, O. F.	Trinidad	Las Animas
Adams, W. A.	Denver	Denver
Adkinson, R. C.	Florence	Fremont
Agan, J. N.	Pierce	Weld
Albi, Rudolph	Denver	Denver
Alldredge, H. H.	Englewood	Arapahoe
Allen, H. J.	Denver	Denver
Allen, J. H.	Denver	Denver
Allen, K. D. A.	Denver	Denver
Allen, L. R.	Colorado Springs	El Paso
Amesse, John W.	Denver	Denver
Anderson, A.	Ault	Weld
Anderson, C. W.	Denver	Denver
Anderson, Geo. M.	Casper, Wyo.	Denver
Anderson, T.	Denver	Denver
Andrew, C. F.	Longmont	Boulder
Andrew, John	Longmont	Boulder
Andrews, Geo. D.	Walsenburg	Huerfano
Apperson, Ed. L.	Denver	Denver
Arndt, Rudolph W.	Denver	Denver
Arneill, James R.	Denver	Denver
Arnold, C. R.	Colorado Springs	El Paso
Arnold, W. W.	Colorado Springs	El Paso
Ashbaugh, G. A.	Rocky Ford	Otero
Ashley, G. H.	Denver	Denver
Asquith, A. C.	Denver	Denver
Atcheson, Geo.	Denver	Denver
Atkinson, T. E.	Greeley	Weld
Attwood, A. D.	Denver	Denver
Aufmwasser, H. W.	Denver	Denver
Aust, T. H.	Cedar Edge	Delta
Averill, H. W.	Evans	Weld
Ayers, V. B.	Buena Vista	Chaffee
Bacon, H. E.	Fort Collins	Larimer
Bagot, W. S.	Denver	Denver
Bailey, M. M.	Loveland	Larimer
Baird, Wm. J.	Boulder	Boulder
Baker, Madeleine M.	Denver	Denver
Baker, R. C.	Denver	Denver
Baker, W. H.	Pueblo	Pueblo
Baker, W. T. H.	Pueblo	Pueblo
Bancroft, G. W.	Colorado Springs	El Paso
Bane, Wm. C.	Denver	Denver
Bane, W. M.	Denver	Denver
Barber, John R.	Boulder	Boulder
Barney, J. M.	Denver	Denver
Barney, N. E.	Sterling	Northeast
Barrett, G. W.	Denver	Northeast
Bartz, L. E.	Windsor	Weld
Baskin, M. J.	Alliance, Neb.	Denver
Bast, Lee	Delta	Delta
Bates, Mary E.	Denver	Denver
Baum, Harry L.	Denver	Denver
Beachley, John V.	Stratton	Kit Carson

Name.	Postoffice.	Constituent Society.
Beaghtler, Amos L.	Denver	Denver
Beall, Kate W.	Denver	Denver
Beatty, J. T.	Denver	Denver
Beck, L. H.	Manitou	El Paso
Beck, N. C.	Denver	Denver
Beere, Rose Kidd	Denver	Denver
Beers, Ida V.	Denver	Denver
Beggs, Wm. H.	Denver	Denver
Bell, Samuel H.	Montrose	Montrose
Bellrose, N. W.	Eaton	Weld
Bennett, E. C.	Boulder	Boulder
Bergen, Frank L.	Burlington	Kit Carson
Berlin, Wm. C. K.	Denver	Denver
Beshoar, Ben.	Trinidad	Las Animas
Beyer, T. E.	Denver	Denver
Biglow, May T.	Denver	Denver
Biles, J. A.	Del Norte	San Luis Valley
Bingham, W. J.	Denver	Denver
Birkenmayer, W. C.	Denver	Denver
Bixler, C. W.	Erie	Boulder
Black, H. A.	Pueblo	Pueblo
Black, J. A.	Pueblo	Pueblo
Black, Melville	Denver	Denver
Blackberby, R. E.	Branson	Las Animas
Blackman, A. A.	Colorado Springs	El Paso
Blackmer, F. J.	Steamboat Sp.	Northwestern
Blackwood, H. A.	Weldona	Morgan
Blank, Henry	Denver	Denver
Blickensderfer, G. M.	Denver	Denver
Block, Leon	Denver	Denver
Blosser, J. R.	Denver	Denver
Blotz, B. B.	Rocky Ford	Otero
Blotz, B. F.	Rocky Ford	Otero
Bluemel, C. S.	Denver	Denver
Blumberg, A. M.	Denver	Denver
Bode, Paul De.	Great Divide	Morgan
Bogart, W. S.	Denver	Denver
Bolton, L. C.	Cedar Edge	Delta
Bonesteel, A. E.	Denver	Denver
Bonney, S. G.	Denver	Denver
Booth, C. O.	Chicago, Ill.	Northeast
Bortree, L. W.	Colorado Springs	El Paso
Bouslog, J. S.	Denver	Denver
Boutros, Amin	Denver	Denver
Bowen, R. M.	Sterling	Northeast
Boyd, E. T.	Denver	Denver
Boyd, Geo. A.	Colorado Springs	El Paso
Braden, J. M.	Lafayette	Boulder
Brady, E. J.	Colorado Springs	El Paso
Bramley, J. R.	Denver	Denver
Brandenburg, H. P.	Denver	Denver
Brandon, E. Agnes	Denver	Denver
Brethouwer, C. G.	Montrose	Montrose
Brinton, W. T.	Cripple Creek	Teller
Broeker, C. G.	Denver	Denver
Broman, O. F.	Greeley	Weld
Brown, Isadore D.	Edgewater	Denver
Bronson, D. A.	Telluride	Montrose
Brown, E. H.	Pueblo	Pueblo
Brown, Geo. E.	Denver	Denver
Brown, H. C.	Denver	Denver
Brown, J. H.	Colorado Springs	El Paso
Brown, L. G.	Colorado Springs	El Paso
Brown, M. D.	Denver	Denver
Brown, Wm. S.	Tabernash	Denver
Brownell, W. F.	Fort Collins	Larimer
Brunk, A. S.	La Junta	Otero
Buchtel, F. C.	Denver	Denver
Buck, W. E.	Pueblo	Pueblo
Buckley, S. B.	Denver	Denver
Bull, H. R.	Grand Junction	Mesa



Name.	Postoffice.	Constituent Society.	Name.	Postoffice.	Constituent Society.
Bundsen, C. A.	Denver	Denver	Corwin, R. W.	Pueblo	Pueblo
Burdick, W. T.	Denver	Denver	Costigan, Daniel D.	Trinidad	Las Animas
Burgin, Chas. H.	Delta	Delta	Craghead, W. S.	Denver	Denver
Burket, R. S.	Denver	Denver	Craig, A. C.	Denver	Denver
Burkhard, Ed. D.	Pueblo	Pueblo	Craig, A. R.	Mesa	Mesa
Burnett, A. L.	Silverton	San Juan	Craig, H. F.	Denver	Denver
Burnett, C. T.	Denver	Denver	Craig, Wm. B.	Denver	Denver
Burnett, N. M.	Lamar	Prowers	Craighead, J. W.	Pueblo	Pueblo
Burns, T. M.	Denver	Denver	Craney, J. P.	Denver	Denver
Bush, C. E.	Denver	Denver	Crawley, Z. T.	Holyoke	Northeast
Bush, J. H.	Sterling	Northeast	Creighton, B. B.	Manitou	El Paso
*Butler, S. S.	Graycreek	Las Animas	Crews, Geo. B.	Denver	Denver
Butterbaugh, Wm. S.	Coal Creek	Las Animas	Crisp, J. D.	Denver	Denver
Caldwell, C. N.	Pueblo	Pueblo	Crisp, Wm. H.	Denver	Denver
Calhoun, H. O.	Denver	Denver	Crook, W. W.	Glenwood Springs	Garfield
Calkins, H. A.	Leadville	Lake	Crosby, L. G.	Denver	Denver
Calonge, G. E.	La Junta	Otero	Crouch, J. B.	Colorado Springs	El Paso
Campbell, J.	Boulder	Boulder	Cryer, W. H.	Colorado Springs	El Paso
Campbell, W. A.	Colorado Springs	El Paso	Crysler, W. C.	Littleton	Arapahoe
Canby, H. S.	Denver	Denver	Culp, J. C.	Springfield	Prowers
Carey, J. D.	Fort Collins	Larimer	Cummings, G. D.	Florence	Fremont
Carmichael, Paul W.	Sopris	Las Animas	Cunningham, A. A.	Denver	Denver
Carmody, T. E.	Denver	Denver	Cunningham, T. D.	Denver	Denver
Carpenter, F. H.	Denver	Denver	Curfman, G. H.	Salida	Chaffee
Cary, F. H.	Denver	Denver	Curtis, H. B.	Denver	Denver
Cary, G. C.	Grand Junction	Mesa	Curry, E. M.	Hastings	Las Animas
Casburn, F. E.	Lamar	Prowers	Dally, H. H.	Tollerburg	Las Animas
Case, A. G.	Denver	Denver	Danahey, T. J.	Denver	Denver
Cassel, O. M.	Burlington	Kit Carson	Daniel, J. H.	Sterling	Northeast
Catron, H. B.	Englewood	Arapahoe	Darling, J. C.	Durango	San Juan
Cattermole, Geo. H.	Pasadena, Calif.	Boulder	Darrow, C. H.	Denver	Denver
Catterson, A. D.	Englewood	Arapahoe	Davis, A. C.	Lamar	Prowers
Cavey, J. E.	Stratton	Kit Carson	Davis, A. L.	Durango	San Juan
Cecchini, A. S.	Denver	Denver	Davis, J. B.	Denver	Denver
Chamberlain, R. S.	Denver	Denver	Davis, J. W.	Aguilar	Las Animas
Chambers, J. C.	La Jara	San Luis Valley	Davis, T. A.	Portland	Fremont
Champlin, H. H.	Denver	Denver	Davis, Wm. H.	Denver	Denver
Chandler, G. B.	Calhan	El Paso	Davlin, C. A.	Alamosa	San Luis Valley
Chapman, S. G.	Colorado Springs	El Paso	Day, H. S.	Grand Junction	Mesa
Chapman W. S.	Walsenburg	Huerfano	Day, W. A.	Delta	Delta
Charles, Robert L.	Denver	Denver	Dean, E. F.	Denver	Denver
Chase, A. M.	Denver	Denver	DeBeque, W. A. E.	DeBeque	Denver
Chase, John S.	Denver	Denver	Delehanty, Ed.	Denver	Denver
Chesmore, H. P.	Pyrolite	El Paso	Denney, R. H.	Elbert	Denver
Childs, S. B.	Denver	Denver	Dennis, E. G.	Olathe	Montrose
Chipman, J. C.	Sterling	Northeast	Dennis, F. L.	Colorado Springs	El Paso
Chisholm, A. J.	Denver	Denver	Dennis, W. S.	Denver	Denver
Christopher, D. I.	Colorado Springs	El Paso	DeSobe, J. O.	Denver	Denver
Church, W. F.	Greeley	Weld	Dibble, R. B.	Pueblo	Pueblo
Clagett, O. F.	Carbondale	Garfield	Didrickson, F. G.	Montrose	Montrose
Clark, I. J.	Fort Morgan	Morgan	Dodge, H. C.	Pueblo	Boulder
Clarke, E. R.	Fort Morgan	Morgan	Dorset, B. C.	Denver	Denver
Clarke, Edwin A.	Akron	Unattached	Douglass, A. L.	Denver	Denver
Clarke, L. G.	Glenwood Springs	Garfield	Downing, E. D.	Woodman	El Paso
Cleland, W. S.	Delta	Delta	*Drechsler, Wm.	Denver	Denver
Clew, J. B.	Denver	Denver	Drinkwater, R. L.	Denver	Denver
Cochems, F. N.	Salida	Lake	Drisdale, W. E.	Chandler	Fremont
Cohen, H. M.	Denver	Denver	Driver, G. S.	Ignacio	San Juan
Colby, H. E.	Holly	Prowers	Drown, L. M.	Denver	Denver
Cole, J. H.	Oak Creek	Northwestern	Dryer, Ernest	Colorado Springs	El Paso
Coleman, O. E.	Denver	Denver	Dunkle, Frank.	Fairplay	Weld
Collier, W. B.	Littleton	Arapahoe	Dunkle, R. C.	Cokedale	Las Animas
Collins, E. W.	Denver	Denver	Dunklee, Geo. K.	Denver	Denver
Conant, E. F.	Denver	Denver	Dunlop, Josephine N.	Pueblo	Pueblo
Condon, C. E.	Breckenridge	Lake	*Duboff, W. G.	Edgewater	Denver
Connor, P. J.	Denver	Denver	*Durnell, A.	Walsenburg	Huerfano
Conway, L. A.	Colorado Springs	El Paso	Dutton, F. G.	Julesburg	Northeast
Cook, D. M.	Julesburg	Northeast	Dworzak, Z. von	Denver	Denver
Cook, L. C.	Golden	Denver	Dyde, C. B.	Greeley	Weld
Cooper, C. E.	Denver	Denver	Dymenberg, N.	Minturn	Denver
Cooper, Henry S.	Denver	Denver	Eakins, C. F.	Brush	Morgan
Cooper, Horace S.	Denver	Denver	Earley, A. H.	Denver	Denver
Coover, D. H.	Denver	Denver	Edson, C. E.	Denver	Denver
Copeland, W. C.	Hotchkiss	Delta	Edwards, E. G.	La Junta	Otero
Corlett, T. G.	Colorado Springs	El Paso	Edwards, G. M.	Denver	Denver
Corper, H. J.	Denver	Denver	Edwards, S. R.	Fort Collins	Larimer

Name.	Postoffice.	Constituent Society.	Name.	Postoffice.	Constituent Society.
*Eichberg, S. B.	Denver	Denver	Gillett, O. R.	Colorado Springs	El Paso
Eigler, C. O.	Denver	Denver	Gilmore, G. B.	Colorado City	El Paso
Elder, C. S.	Denver	Denver	Gjellum, A. B.	Del Norte	San Luis Valley
Elliot, H. R.	Denver	Denver	Gleason, R. L.	Fort Collins	Larimer
Elliott, C. E.	Victor	Teller	Goldbloom, Isador	El Paso, Texas	Denver
Elliott, C. H.	Denver	Denver	Good, A. H.	Gunnison	Montrose
Elliott, J. T.	Denver	Denver	Gooding, B. A.	Fort Collins	Larimer
*Ellis, C. A.	Denver	Denver	Goodloe, Hart	Independence, Kan.	El Paso
Emery, H. G.	Bennett	Denver	Goodson, H. C.	Colorado Springs	El Paso
Engelson, C. J.	Brookings, S. D.	Denver	Gorsuch, John C.	Denver	Denver
Enos, Clinton	Denver	Denver	Gothard, J. W.	Avondale	Mesa
Epler, Crum	Pueblo	Pueblo	Gotthelf, I. L.	Saguache	San Luis Valley
Erich, A. F.	Delta	Delta	Gowen, C. R.	Denver	Denver
Espey, J. G.	Trinidad	Las Animas	Graham, Chas. A.	Denver	Denver
Espey, J. R.	Trinidad	Las Animas	Graham, E. V.	Breckenridge	Lake
Evans, C. H.	Colorado Springs	El Paso	Graham, R. F.	Greeley	Weld
Evans, E. E.	Fort Morgan	Morgan	Grant, W. W.	Denver	Denver
Evans, F. J.	Denver	Denver	Grantham, O. A.	Littleton	Arapahoe
Evans, T. J.	Colorado Springs	El Paso	Graves, C. H.	Cañon City	Fremont
Ewing, G. F.	Julesburg	Northeast	Graves, H. C.	Cañon City	Fremont
Eyerly, T. L.	Denver	Huerfano	Green, H. A.	Boulder	Boulder
Fantz, T. S.	Denver	Denver	Green, J. L.	Eagle	Garfield
Farrington, F. H.	Boulder	Boulder	Groom, Robert	Boulder	Boulder
Farthing, C. H.	Meeker	Garfield	Groves, D. C.	Montrose	Montrose
Faust, F. A.	Colorado Springs	El Paso	Grover, B. B.	Colorado Springs	El Paso
Fee, L. W.	Wiley	Prowers	Guthrie, Alice B.	Denver	Denver
*Ferris, C. A.	Denver	Denver	Guthrie, Ewing C.	Denver	Denver
Fenton, W. E.	Rocky Ford	Otero	Guthrie, J. F.	Vineland	Pueblo
Fezer, Florence	Greeley	Weld	Hadley, Edgar	Montrose	Montrose
Filmer, B. A.	Denver	Denver	Hagerman, S. V.	Las Animas	Otero
Findley, Robert H.	Somerset	Delta	Haggart, John	Durango	San Juan
Finney, H. S.	Denver	Denver	Hall, A. Z.	Eaton	Weld
Finney, R. H.	Pueblo	Pueblo	Hall, H. E.	La Junta	Otero
Finnoff, Wm. C.	Denver	Denver	Hall, Josiah N.	Denver	Denver
Fischer, V. B.	Boulder	Boulder	Halley, S. C.	Fort Collins	Larimer
Fisher, Carl D.	Denver	Denver	Halley, W. H.	Denver	Denver
Foley, John Wm.	Denver	Denver	Halsted, F. S.	Denver	Denver
Forbes, R. P.	Denver	Denver	Ham, Judson B.	Denver	Denver
Ford, G. R.	Trinidad	Las Animas	Hammell, John P.	Denver	Denver
Ford, J. E.	Grand Junction	Mesa	Haney, J. R.	Colorado Springs	El Paso
Forhan, T. J.	Calcite	Las Animas	Hanford, P. O.	Colorado Springs	El Paso
Forney, F. A.	Woodman	El Paso	Hanson, F. P.	Gunnison	Fremont
Forster, A. M.	Colorado Springs	El Paso	Hanson, K. K.	Grand Junction	Mesa
Foster, J. M.	Denver	Denver	Hardesty, W. B.	Berthoud	Larimer
Fowler, Harmon L.	Denver	Denver	Hardy, J. O.	Las Animas	Otero
Fowler, Ora S.	Denver	Denver	Harlow, W. P.	Boulder	Boulder
Fox, M. R.	Sterling	Northeast	Harmer, W. W.	Greeley	Weld
Frank, Lorenz W.	Denver	Denver	Harner, C. E.	Denver	Denver
Frank, Robert T.	Denver	Denver	Harris, Allen H.	Denver	Denver
Frankle, B. B.	Denver	Denver	Harris, C. E.	Woodman	El Paso
Fraser, M. Ethel V.	Denver	Denver	Harrison, Fleet H.	Gilman	Denver
Fraser, R. W.	Denver	Denver	Hart, J. A.	Geneva, N. Y.	El Paso
Freeland, H. J.	Denver	Denver	Hart, J. F.	Julesburg	Northeast
Freeman, Leonard	Denver	Denver	Hartwell, John B.	Colorado Springs	El Paso
Freudenthal, A.	Trinidad	Las Animas	Harvey, Horace G.	Denver	Denver
Friedman, Emanuel	Denver	Denver	Haskell, E. E.	Windsor	Weld
Friend, F. Milton	Lamar	Prowers	Hassenplug, G. K.	Denver	Denver
Fugard, A. L.	Pueblo	Pueblo	Hassenplug, Wm. F.	Cripple Creek	Teller
Fuller, C. R.	Salida	Chaffee	Hayes, A. I.	Denver	Denver
Gale, M. Jean	Denver	Denver	Hayes, Richard	Pueblo	Pueblo
Gallagher, T. J.	Denver	Denver	Hays, W. E.	Sterling	Las Animas
Gardiner, C. F.	Colorado Springs	El Paso	Hazelton, Wm. H.	Burlington	Kit Carson
Garvin, D. Edson	Golden	Denver	Hazlett, H. W.	Paonia	Delta
Garwood, H. G.	Denver	Denver	*Healy, Michael D.	Denver	Denver
Gasser, W. P.	Denver	Denver	Hegner, C. F.	Denver	Denver
Gauss, Harry	Loveland	Larimer	Helmlick, A. F.	Grand Junction	Mesa
Gelien, Johanna	Denver	Denver	Heller, Frederick M.	Pueblo	Pueblo
Gengenbach, F. P.	Denver	Denver	Henderson, H. S.	Grand Junction	Mesa
George, McLeod M.	Denver	Denver	Henkle, F. W. E.	Rifle	San Juan
Gibson, J. D.	Denver	Denver	Hepler, A. H.	Newcastle	Garfield
Giese, C. O.	Colorado Springs	El Paso	Hepp, G. Brinton	Denver	Denver
Giffin, Clay E.	Boulder	Boulder	Hereford, J. H.	Colorado Springs	El Paso
Giffin, L. M.	Boulder	Boulder	Herrman, L. L.	Alamosa	San Luis Valley
Gilbert, G. B.	Colorado Springs	El Paso	Herson, R. G.	La Junta	Otero
Gilbert, O. M.	Boulder	Boulder	Hess, Wm. L.	Denver	Denver
Gillaspie, Carbon	Boulder	Boulder	Heusinkveld, Gerrit	Denver	Denver



Name.	Postoffice.	Constituent Society.	Name.	Postoffice.	Constituent Society.
Heuston, H. H.	Boulder	Boulder	King, D. M.	Denver	Denver
Hick, L. A.	Delta	Delta	King, W. W.	Cripple Creek	Teller
Hickey, Clinton G.	Denver	Denver	Kinney, J. E.	Denver	Denver
Hickey, H. L.	Denver	Denver	Kinzie, J. W.	Haxtum	Northeast
Higbee, C. F.	Fowler	Otero	Kleiner, Moses	Denver	Denver
Higgins, John W.	Denver	Denver	Knoch, N. H.	Denver	Denver
Hill, E. C.	Denver	Denver	Knott, Isaiah	Montrose	Montrose
Hill-Crawford, J. T.	Los Angeles	Denver	Knowles, E. W.	Greeley	Weld
Hill, H. C.	Holyoke	Northeast	Knowles, T. R.	Colorado Springs	El Paso
Hill, W. K., Jr.	Colorado Springs	El Paso	Knuckey, C. T.	Lamar	Prowers
Hillkowitz, Philip	Denver	Denver	Kortwright, S. E.	Leadville	Lake
Hillyer, W. E.	Boulder	Boulder	Kracow, A. R.	Denver	Denver
Hinshaw, J. D.	Gibson, N. M.	Fremont	Kretschmer, O. S.	Denver	Denver
Hoag, D. E.	Pueblo	Pueblo	Krohn, H. N.	Denver	Denver
Hodnette, W. P.	Denver	Denver	Krohn, M. J.	Denver	Denver
Holden, G. Walter	Denver	Denver	Kruse, May B.	Denver	Denver
Holland, A. C.	Colorado Springs	El Paso	Kunitomo, N.	Denver	Denver
Holmes, R. E.	Cañon City	Fremont	La Croix, Ray R.	Denver	Denver
Hopkins, G. A.	Glenwood Springs	Garfield	Lahmer, I. B.	Walsenburg	Huerfano
Hopkins, John R.	Denver	Denver	Lamberton, Robt. E.	Denver	Denver
Horan, E. J.	Glenwood Springs	Garfield	Lamme, J. M.	Walsenburg	Huerfano
Horton, D. J.	La Salle	Weld	Lamme, S. J.	Walsenburg	Huerfano
Hotchkiss, Walter K.	Brighton	Denver	LaMoure, H. A.	Pueblo	Pueblo
Hotopp, T. M. H.	Pagosa Springs	San Juan	Lane, Harold C.	Denver	Denver
Houf, W. H.	Iliff	Northeast	Langdon, E. E.	Silverton	Denver
Howard, C. J.	Denver	Denver	Langdon, G. W.	Oak Creek	Northwestern
Howard, J. F.	Denver	Denver	Lannon, A. R.	Denver	Denver
Howard, T. Leon	Denver	Denver	Larimer, G. W.	Salida	Chaffee
Howell, J. D.	Berthoud	Larimer	LaRue, C. L.	Boulder	Boulder
Howell, Thos F.	Alamosa	San Luis Valley	Larson, J. H.	Wray	Mesa
Hudston, R.	London	Denver	Lassen, Fritz	Pueblo	Pueblo
Huelsmann, L. C.	Colorado Springs	El Paso	Latta, C. J.	Sterling	Northeast
Hughes, T. A.	Denver	Denver	Lawson, J. A.	Rocky Ford	Otero
Hummel, E. P.	Sterling	Northeast	Lay, H. T.	Denver	Denver
Humphrys, Ethel D.	Denver	Denver	Leavitt, Byron C.	Millbrook, Mass.	Denver
Hunnicut, W. P.	Colorado Springs	El Paso	Lee, G. H.	Denver	Denver
Hutchinson, A. F.	Durango	San Juan	Lee, H. C.	Trinidad	Las Animas
Hutchinson, Wm.	Pueblo	Pueblo	Lehan, J. W.	Greeley	Weld
Hutton, V. A.	Florence	Fremont	Lennox, P. M.	Colorado Springs	El Paso
Inglis, John	Denver	Denver	LeRossignol, W. J.	Rifle	Garfield
Ingraham, C. B.	Denver	Denver	Levin, O. S.	Denver	Denver
Irwin, Robert S.	Denver	Denver	Levy, Maurice	Denver	Denver
Jackson, Edward	Denver	Denver	Levy, Robt.	Denver	Denver
Jackson, F. A.	Salida	Chaffee	Lewis, G. B.	Denver	Denver
Jaeger, Chas.	Denver	Denver	Lewis, Robert	Denver	Denver
Jaeger, J. R.	Denver	Denver	Lewis, W. B.	Denver	Denver
James, T. L.	Colorado Springs	El Paso	Lewis, W. H.	Hotchkiss	Delta
Jayne, W. A.	Denver	Denver	Leyda, James H.	Clayton, N. M.	Denver
Jeannotte, J. A.	Leadville	Lake	Leyda, Paul	Frederick	Boulder
Jenkins, E. W.	Denver	Denver	Libby, Geo. F.	Denver	Denver
John, Grant H.	Englewood	Arapahoe	Liddle, E. B.	Colorado Springs	El Paso
Johnson, E. E.	Cortez	San Juan	Likes, L. E.	Lamar	Prowers
Johnson, H. A.	Las Vegas, Nev.	Garfield	Lincoln, C. L., Jr.	Denver	Denver
Johnson, Margaret	Boulder	Boulder	Lindsay, Kate	Boulder	Boulder
Johnson, Ross W.	Denver	Denver	Lingenfelter, G. P.	Denver	Denver
Johnston, R. S.	La Junta	Otero	Lingenfelter, H. A.	Durango	San Juan
Johnston, W. S.	Pueblo	Pueblo	Lipscomb, J. M.	Denver	Denver
Jones, Robt. E.	Denver	Denver	Little, Lowell	Hayden	Northwestern
Jones, S. Fosdick	Denver	Denver	Little, W. T.	Cañon City	Fremont
Jones, Wm. W.	Denver	Denver	Lockard, Lorenzo B.	Denver	Denver
Joslyn, S. A.	Loveland	Larimer	Lockwood, C. E.	Olathe	Montrose
Katzman, Maurice	Denver	Denver	Lockwood, F. W.	Fort Morgan	Morgan
Keep, Frank E.	Denver	Denver	Löf, A. J. O.	Denver	Denver
Keesee, W. H.	Haxtum	Northeast	Long, Margaret	Denver	Denver
Keller, W. C.	Genoa	Kit Carson	Long, T. F.	Denver	Denver
Kelley, John P.	Golden	Denver	Loomis, P. A.	Colorado Springs	El Paso
Kelsey, Otis H.	Denver	Denver	Lorimer, H. F.	Ordway	Otero
Kennedy, Arthur L.	Denver	Denver	Love, Minnie C. T.	Denver	Denver
Kennedy, Geo. A.	Limon	Denver	Love, Tracy R.	Denver	Denver
Kenney, F. W.	Denver	Denver	Lovejoy, H. E.	Rocky Ford	Otero
Kent, Wallace C.	Denver	Denver	Low, H. T.	Pueblo	Pueblo
Kerley, G. L.	La Junta	Otero	Lowen, Chas. J.	Denver	Denver
Kern, B. F.	Platteville	Weld	Lucas, Wilbur	Pueblo	Pueblo
Kernaghan, Wm.	Steamboat Springs	Weld	Lucy, D. A.	Denver	Denver
		Northwestern	Luqueer, F. A.	Pueblo	Pueblo
Kickland, W. A.	Fort Collins	Larimer	Lusby, A. C.	Brush	Morgan

Name.	Postoffice.	Constituent Society.	Name.	Postoffice.	Constituent Society.
Lyman, Chas. B....	Denver .....	Denver	Miel, Geo. W.....	Denver .....	Denver
Lynch, E. B.....	Leadville .....	Lake	Mierley, Ira C.....	Denver .....	Denver
Lyons, Oliver .....	Denver .....	Denver	Miles, Amy B.....	Boulder .....	Boulder
Macomber, Geo. N....	Denver .....	Denver	Miles, M. E.....	Boulder .....	Boulder
Macomber, H. G....	Denver .....	Denver	Miller, C. L.....	Swink .....	Otero
Madden, J. H.....	Colorado Springs....	El Paso	Miller, Eli A.....	Denver .....	Denver
Madler, N. A.....	Greeley .....	Weld	Miller, L. A.....	Colorado Springs....	El Paso
Magruder, A. C.....	Colorado Springs....	El Paso	Miller, L. I.....	Denver .....	Denver
Mahoney, J. J.....	Colorado Springs....	El Paso	Miller, Samuel W....	Denver .....	Denver
Male, J. T. ....	Yampa .....	Northwestern	Minner, M. G.....	Denver .....	Denver
Mann, Alfred .....	Wauwatosa, Wis. ...	Denver	Minnig, Arnold....	Denver .....	Denver
Manns, Rudolph ...	Denver .....	Denver	Mitchell, Wm. C....	Denver .....	Denver
Marbourg, E. M....	Colorado Springs....	El Paso	Mitchell, W. I. ....	Paonia .....	Delta
Markley, Arthur J..	Denver .....	Denver	Moleen, G. A.....	Denver .....	Denver
Marmaduke, C. V....	Pueblo .....	Pueblo	Monaghan, D. G....	Denver .....	Denver
Marshak, M. I.....	Edgewater .....	Denver	Monismith, A. T....	Fort Lupton .....	Weld
Martin, W. F.....	Colorado Springs....	El Paso	Monson, G. L.....	Denver .....	Denver
Mathews, P. G.....	Walsenburg .....	Huerfano	*Montgomery, F....	Eagle .....	Garfield
Matlack, J. A.....	Longmont .....	Boulder	Montgomery, D. H..	Denver .....	Denver
Matthews, B. H....	Denver .....	Denver	Moore, A. M.....	Denver .....	Denver
Maul, H. G. ....	Denver .....	Denver	Moore, Chas. ....	Colorado Springs....	El Paso
Maul, R. F. ....	Denver .....	Denver	Moore, F. R.....	Florence .....	Fremont
Maxwell, J. G.....	Cañon City .....	Fremont	Moore, G. C.....	Littleton .....	Arapahoe
Mahew, D. P.....	Colorado Springs....	El Paso	Moore, R. D.....	Denver .....	Denver
Maynard, C. W....	Pueblo .....	Pueblo	Morehouse, J. A....	Sterling .....	Northeast
McArthur, A. W. ...	Delta .....	Delta	Morgan, J. W. ....	Denver .....	Denver
McBride, W. L.....	Seibert .....	Kit Carson	Morian, C. H.....	Denver .....	Denver
McCarroll, James ..	Denver .....	Denver	Morning, J. F.....	Denver .....	Denver
McCartney, F. M....	Denver .....	Denver	Morrill, E. L.....	Fort Collins .....	Larimer
McCarty, D. W.....	Berthoud .....	Larimer	Morrish, R. W.....	Fort Collins .....	Larimer
McCaw, J. A.....	Denver .....	Denver	Morrison, C. S....	Colorado Springs....	El Paso
McClanahan, A. C....	Delta .....	Delta	Morrison, R. G.....	Denver .....	Denver
McClanahan, R. K....	Colorado Springs....	El Paso	Morse C. E.....	Alamosa....	San Luis Valley
McClanahan, Z. H....	Colorado Springs....	El Paso	Mortimer, J. L. ....	Denver .....	Denver
*McClure, Finla....	Salida .....	Chaffee	Morrow, E. L.....	Oak Creek....	Northwestern
McClure, C. O.....	Trinidad .....	Las Animas	Moses, H. C.....	Colorado Springs....	El Paso
McConnell, J. F....	Colorado Springs....	El Paso	Moyer, E. M.....	Denver .....	Denver
McCorkle, H. B....	Colorado Springs....	El Paso	Mudd, W. G.....	Denver .....	Denver
McCullough, C. J....	Denver .....	Denver	Mugrage, E. R.....	Denver .....	Denver
McCullough, D. H..	Camp Kearny, Calif.	Larimer	Mullin, W. V.....	Colorado Springs....	El Paso
McDonald, A. J.....	Aspen .....	Lake	Munro, E. H.....	Grand Junction .....	Mesa
McDonald, F. J....	Leadville .....	Lake	Murphy, P. A.....	Denver .....	Denver
McDonald, R. J....	Leadville .....	Lake	Myers, G. M.....	Pueblo .....	Pueblo
McDonald, R. J., Jr.	Loveland .....	Larimer	Myers, J. T. ....	Hotchkiss .....	Delta
McDonnell, J. J....	Pueblo .....	Pueblo	Naugle, J. E.....	Sterling .....	Northeast
McEachern, C. G....	Denver .....	Denver	Needham, Chas. N..	Denver .....	Denver
McFadden, J. G....	Loveland .....	Larimer	Needles, J. W. ....	Pueblo .....	Pueblo
McFarland, S. B....	Longmont .....	Boulder	Neepser, E. R.....	Colorado Springs....	El Paso
McGraw, H. R. ....	Denver .....	Denver	Neff, O. S.....	Denver .....	Kit Carson
McGugan, A.....	New York .....	Denver	Nelson, G. E.....	Windsor .....	Weld
McHugh, P. J.....	Fort Collins .....	Larimer	Netherton, E. N....	Wellington .....	Larimer
McIntyre, T. A.....	Colorado Springs....	El Paso	Neuhaus, G. E.....	Denver .....	Denver
McKay, J. H.....	Denver .....	Denver	Newell, G. E.....	Buena Vista .....	Chaffee
McKeen, H. R.....	Denver .....	Denver	Newland, C. A.....	Springfield .....	Prowers
McKelvey, S. R.....	Denver .....	Denver	Newman, J. A.....	Colorado Springs....	El Paso
McKenney, G. P....	Denver .....	Denver	Newsom, H. G.....	Denver .....	Denver
McKenzie, C. D....	Denver .....	Denver	Nicoletti, Frank ...	Pueblo .....	Pueblo
McKeown, E. E.....	Denver .....	Denver	Nifong, J. D.....	Denver .....	Denver
McKibben, S.....	Creede .....	San Luis Valley	Noble, M. R.....	Harrisburg, Pa. ....	El Paso
McKinnie, L. H....	Colorado Springs....	El Paso	Noonan, G. M.....	Walsenburg ....	Las Animas
McKnight, J. H....	Haxtum .....	Northeast	Norton, D. O.....	Fort Collins .....	Larimer
McLauthlin, C. A....	Denver .....	Denver	Nossaman, A. J....	Pagosa Springs....	San Juan
McLauthlin, H. W....	Denver .....	Denver	O'Connor, J. W....	Denver .....	Denver
*McLean, A. M.....	Leadville .....	Lake	Ogilbee, H. M.....	Manitou .....	El Paso
McMichael, A. O....	Denver .....	Denver	Ogle, W. M.....	Forbes .....	Las Animas
McNaught, F. H....	Denver .....	Denver	Ohlhart, W. A.....	Denver .....	Denver
McNeill, F. A.....	Dove Creek .....	San Juan	Olmsted, G. K.....	Denver .....	Denver
Meacham, J. W.....	Denver .....	Denver	Olson, D. G.....	Keota .....	Weld
Mead, Ella A. ....	Greeley .....	Weld	Oppenheim, S. M...	Denver .....	Denver
Meader, Chas. N....	Denver .....	Denver	Oram, O. A.....	Crested Butte .....	Boulder
Means, F. M.....	Holyoke .....	Northeast	Orendorff, Otis....	Cañon City .....	Fremont
Menkel, H. C.....	Simla, India .....	Denver	Orr, C. L.....	Alamosa ....	San Luis Valley
Menser, Bert .....	Denver .....	Denver	Orshorn, G. E.....	Denver .....	Denver
Metcalf, A. W.....	Denver .....	Denver	Osborne, C. K.....	Starbuck, Wash. ....	Lake
Metz, C. W.....	Denver .....	Denver	Pace, J. G.....	Woodman .....	El Paso
Middlekamp, M. S...	Pueblo .....	Pueblo	Packard, Geo. B....	Denver .....	Denver



Name.	Postoffice.	Constituent Society.	Name.	Postoffice.	Constituent Society.
Packard, Geo. B., Jr.	Denver	Denver	Robertson, E. H.	Boulder	Boulder
Packard, Louis	Denver	Denver	Robbins, A. W.	Durango	San Juan
Packard, Robt. G.	Denver	Denver	Robinson, E. F.	Denver	Denver
Palmer, F. E.	Sterling	Northeast	Robinson, G. W.	Trinidad	Las Animas
Palmer, W. A.	Castle Rock	Denver	Robinson, J. R.	Colorado Springs	El Paso
Parker, O. T.	Salida	Chaffee	Roe, John F.	Denver	Denver
Parker, Thadd.	Primero	San Luis Valley	Roehrig, Karl F.	Denver	Denver
Passover, Lucy L.	Denver	Denver	Rogers, E. J. A.	Denver	Denver
Pate, C. E.	Denver	Denver	Rogers, F. E.	Denver	Denver
Pattee, J. J.	Pueblo	Pueblo	Rogers, J. S.	Kiowa	Denver
Patterson, J. A.	Colorado Springs	El Paso	Rook, C. W.	Julesburg	Northeast
Patterson, W. O.	Pueblo	Pueblo	Root, M. R.	Denver	Denver
Peck, G. S.	Denver	Denver	Rothwell, A. M.	Denver	Denver
Pecony, Jos. W.	Denver	Denver	Rothwell, P. D.	Denver	Denver
Peirce, F. J.	Pueblo	Pueblo	Rover, H. W.	Denver	Denver
*Pennock, V. R.	Longmont	Boulder	Ruegnitz, L. H.	Denver	Denver
Peppers, A. W.	Hudson	Weld	Rupert, L. E.	Florence	Fremont
Perilli, Giovanni	Denver	Denver	Ryan, J. G.	Denver	Denver
Perkins, C. C.	Denver	Denver	Ryan, R. M.	Fruita	Mesa
Perkins, I. B.	Denver	Denver	Sadler, E. L.	Fort Collins	Larimer
Perkins, J. M.	Denver	Denver	Salisbury, E. I.	Denver	Denver
Perrott, E. W. Jr.	Denver	Denver	Sams, Louis V.	Denver	Denver
Pershing, C. L.	Denver	Denver	Savage, Joseph C.	Denver	Denver
Pershing, H. T.	Denver	Denver	Scannell, E. J.	Preston, Cuba	Las Animas
Pestal, Joseph	Lamar	Prowers	Schaefer, S. W.	Colorado Springs	El Paso
Peters, A. H.	Colorado Springs	El Paso	Schermerhorn, F.	Montrose	Montrose
Peterson, Edgar A.	Denver	Denver	Scherrer, E. A.	Denver	Denver
Phelps, E. M.	Basalt	Garfield	Schoen, W. A.	Victor	Teller
Philpott, J. A.	Denver	Denver	Schofield, J. V.	Inspiration, Ariz.	El Paso
Pipkin, G. P.	Pueblo	Pueblo	Schultz, W. M.	Nederlands	Fremont
Pitney, Orville	Cheraw	Otero	Schwer, J. L.	Pueblo	Pueblo
Place, O. G.	Cañon City	Denver	Sears, Thad P.	Denver	Denver
Plumb, Carl W.	Grand Junction	Mesa	Sedwick, Wm. A.	Denver	Denver
Poley, C. W.	Boulder	Boulder	Seebass, A. R.	Denver	Denver
Pollard, J. W.	Denver	Denver	Senger, Wm.	Pueblo	Pueblo
Pollock, R. M.	Rocky Ford	Otero	Sewall, Henry	Denver	Denver
Porter, H. K.	Delta	Delta	Shafer, Harry S.	Denver	Denver
Porter, R. B.	Fruita	Mesa	Shaffer, E. G.	Delta	Delta
Pothuisje, P. J.	Denver	Denver	Shands, H. R.	Colorado Springs	El Paso
Powell, Cuthbert	Denver	Denver	Sharpley, W. H.	Denver	Denver
Powers, Chas. A.	Denver	Denver	Shea, R. M.	Denver	Denver
Pratt, Elsie S.	Denver	Denver	Sheller, W. O.	Lamar	Prowers
Presnall, C. W.	Trinidad	Las Animas	Shelton, E. K.	Antonito	San Luis Valley
Prewitt, Francis E.	Denver	Denver	Shere, O. M.	Denver	Denver
Price, Evelyn B.	Pueblo	Pueblo	Sherman, E. M.	Pasadena, Calif.	Prowers
Price, R. C.	Denver	Denver	Shields, J. M.	Denver	Denver
Prien, O. L.	Denver	Denver	Shipman, F. M.	Victor	Teller
Printz, Morris	Denver	Denver	Shippey, O. P.	Saguache	San Luis Valley
Prinzing, J. F.	Denver	Denver	Shivers, M. O.	Colorado Springs	El Paso
Purcell, James W.	Denver	Denver	Shollenberger, C. F.	Denver	Denver
Queal, E. B.	Boulder	Boulder	Shotwell, W. E.	Denver	Denver
Rader, Wm. H.	Collbran	Mesa	Shropshire, J. W.	Pueblo	Pueblo
Ragsdale, E. W.	La Junta	Otero	Sickafoose, H. R.	Pueblo	Pueblo
Ramsey, R. T.	Denver	Denver	Sickenberger, J. U.	Grand Junction	Mesa
Rasar, R. B.	Granada	Prowers	Simon, John	Longmont	Boulder
Ramond, E. I.	Wellington	Larimer	Simon, Saling	Englewood	Arapahoe
Reed, C. W.	Grand Junction	Mesa	Sidwell, C. E.	Denver	Denver
Reed, D. W.	Saguache	San Luis Valley	Singer, W. F.	Pueblo	Pueblo
Reed, W. K.	Boulder	Boulder	Sisson, W. B.	Sterling	Northeast
Reed, W. W.	Boulder	Boulder	Skinner, M. G.	Washington, D. C.	Denver
Reid, E. W.	Flagler	Kit Carson	Sloan, W. W.	Mt. Harris	Northwestern
Repogle, B. F.	Fort Collins	Larimer	Smith, A. E.	Grand Junction	Denver
Rice, D. H.	Colorado Springs	El Paso	Smith, C. A.	Monte Vista	San Luis Valley
Rich, W. F.	Pueblo	Pueblo	Smith, H. A.	Delta	Delta
Richards, D. F.	Denver	Denver	Smith, R. G.	Denver	Denver
Richie, L. T.	Trinidad	Las Animas	Snair, W. L.	Louisville	Boulder
Richmond, C. E.	Colorado Springs	El Paso	Snedec, J. F.	Pueblo	Pueblo
Richmond, G. E.	Center	San Luis Valley	Snyder, H. W.	Denver	Denver
Rilance, Chas. D.	Denver	Denver	Soland, L. W.	Alamosa	San Luis Valley
Ringle, C. A.	Greeley	Weld	Spangleberger, M. A.	Denver	Denver
Ritterspach, F. J.	Denver	Denver	Spaulding, W. F.	Greeley	Weld
Robb, Wm. J.	Denver	Denver	Spearman, F. S.	Rifle	Garfield
Robe, R. C.	Pueblo	Pueblo	Spencer, F. R.	Boulder	Boulder
Roberts, J. O.	Denver	Denver	Spicer, Chas. M.	Denver	Denver
Roberts, W.	Denver	Denver	Spicer, O. W.	Colorado Springs	El Paso
Roberts, Wm. J.	Denver	Denver	Spitzer, W. M.	Denver	Denver

Name.	Postoffice.	Constituent Society.	Name.	Postoffice.	Constituent Society.
Spivak, C. D.	Denver	Denver	Wade, L. H.	Denver	Denver
Sprecher, G. W.	Denver	Mesa	Waggener, W. R.	Denver	Denver
Stahl, A. W.	Denver	Denver	Walker, C. E.	Denver	Denver
Stains, Minnie E.	Colorado Springs	El Paso	Wallace, F. E.	Pueblo	Pueblo
Staunton, A. G.	Denver	Denver	Wallace, G. C.	Denver	Denver
Steeves, Chas. P.	Denver	Denver	Wallace, J. F.	Camp Kearny, Calif.	Denver
Steinberg, B. M.	Denver	Denver	Walton, James B.	Denver	Denver
Steinhardt, E. H.	Pueblo	Pueblo	Waring, J. J.	Denver	Denver
Stemmen, W. E.	Denver	Denver	Warner, G. R.	Denver	Mesa
Stephenson, F. B.	Denver	Denver	Wasson, W. W.	Denver	Denver
Stevens, F. T.	Colorado Springs	El Paso	Waters, P. A.	Lewiston, Ida.	San Luis Valley
Stevens, H. L.	Denver	Denver	Watson, W. V.	Plateau City	Mesa
Stickles, Albert	Coalmont	San Luis Valley	Weatherford, J. E.	Denver	Denver
Stillling, H. R.	Denver	Denver	Webb, E. C.	Cañon City	Fremont
Stirling, Margaret B.	Fort Morgan	Morgan	Webb, G. B.	Colorado Springs	El Paso
Stoddard, T. A.	Pueblo	Pueblo	Weber, Fred H.	Idaho Springs	Denver
Stough, C. F.	Colorado Springs	El Paso	Weidlein, F. H.	Palisade	Mesa
Stratton, Mary R.	Denver	Denver	Weldon, Luther J.	Denver	Denver
Streamer, C. W.	Pueblo	Pueblo	Wells, N. D.	Fort Morgan	Morgan
Strickler, D. A.	Denver	Denver	Welsh, E. D.	Colorado Springs	El Paso
Strong, J. C.	Leadville	Lake	Wenk, J. A.	Colorado Springs	Denver
Stubbs, A. L.	La Junta	Otero	Wescott, O. D.	Denver	Denver
Stubbs, J. E.	La Junta	Otero	West, T. J.	Pasadena, Calif.	Denver
Stuver, E.	Fort Collins	Larimer	Wetherill, H. G.	Denver	Denver
Stuver, H. W.	Denver	Denver	Whitaker, H. L.	Denver	Denver
Sunderland, W. E.	Denver	Denver	Whitaker, W. O.	Kirk	Kit Carson
Sutcliffe, Geo.	Wray	Morgan	White, H. T.	Avondale	Pueblo
Swan, W. H.	Colorado Springs	El Paso	Whiteley, P. W.	Denver	Denver
Swerdfeger, E. B.	Denver	Denver	Whitman, R. C.	Boulder	Boulder
Swezey, Samuel	Denver	Denver	Whitney, H. B.	Denver	Denver
Taussig, A. S.	Denver	Denver	Wiest, Newton	Denver	Denver
Taylor, A. G.	Grand Junction	Mesa	Wilcox, H. W.	Denver	Denver
Taylor, Edward E.	Denver	Denver	Wilcox, Sarah C.	Denver	Denver
Taylor, H. L.	Denver	Denver	Wilkins, C. F.	Fort Collins	Larimer
Taylor, R. D.	Monte Vista	San Luis Valley	Wilkinson, C. H.	Cañon City	Fremont
Taylor, R. R.	Pueblo	Pueblo	Willett, F. E.	Steamboat Springs	Northwestern
Taylor, T. C.	Fort Collins	Larimer	Williams, A. F.	Fort Morgan	Morgan
Tennant, C. E.	Denver	Denver	Williams, A. H.	Denver	Denver
Tepley, L. V.	Denver	Denver	Williams, G. B.	Lamar	Prowers
Thompson, C. W.	Pueblo	Pueblo	Williams, H. L.	Flagler	Kit Carson
Thompson, David	Denver	Denver	Williams, N. C.	Denver	Denver
Thompson, D. G.	Trinidad	Las Animas	Williams, S.	Denver	Denver
Thompson, H. M.	Pueblo	Pueblo	Williams, W. W.	Denver	Denver
Thompson, J. W.	Pueblo	Pueblo	Williamson, W. A.	Rockvale	Fremont
Thompson, N. A.	Denver	Denver	Willis, C. H.	Denver	Denver
Thompson, W. E.	Greeley	Weld	Wilson, R. D.	Holly	Prowers
Thulin, H. F.	Denver	Denver	Wilson, R. E.	Denver	Denver
Tidd, C. H.	Telluride	Delta	Winston, A. L.	Colorado Springs	El Paso
Timmons, E. L.	Colorado Springs	El Paso	Withers, Sanford	Denver	Denver
Timmons, H. L.	Holyoke	Northeast	Witter, Roy V.	Bayard, Nebr.	Denver
Todd, J. C.	Boulder	Boulder	Wolf, J. A.	Denver	Denver
Totler, Thos. M.	Ault	Weld	Wolf, John G.	Pueblo	Pueblo
Tower, F. A.	Denver	Denver	Wolfer, C. W.	Louisville	Boulder
Tremaine, Harmon	Denver	Denver	Wollenweber, L. C.	Denver	Denver
Triplett, T. A.	Denver	Denver	Wood, W. H.	Greeley	Weld
Trout, A. L.	Walsenburg	Huerfano	Woodbridge, J. H.	Pueblo	Pueblo
Trueblood, Chas.	Monte Vista	San Luis Valley	Woodcock, B.	Greeley	Weld
Tubbs, W. R.	Carbondale	Garfield	Woodruff, Dare	Denver	Northeast
Tucker, Beverley	Colorado Springs	El Paso	Woodward, Harry	Colorado Springs	El Paso
Turner, W. E.	Brush	Morgan	Work, Hubert	Pueblo	Pueblo
Turrell, H. C.	Durango	San Juan	Work, Philip	Pueblo	Pueblo
Twyford, May D.	Pueblo	Pueblo	Worthington, A. K.	Denver	Denver
Tygart, C. A.	Denver	Denver	Wright, J. B.	La Veta	Pueblo
Tyrell, H. C.	Durango	San Juan	Wright, M. G.	Denver	Denver
Uji, Shigenatsu	Denver	Denver	Wright, R. E.	Loveland	Larimer
Ulmer, H. D.	Denver	Denver	Wright, S. A.	Loveland	Larimer
Vanderhoof, D. A.	Colorado Springs	El Paso	Wyckoff, G. L.	Loveland	Larimer
Van Der Schow, G. E.	Fowler	Otero	Yale, F. C.	Pyrolite	Pueblo
Van Gilder, D. W.	Denver	Denver	Yates, W. W.	Loveland	Larimer
Van Meter, L. M.	Denver	Denver	Yont, Kate	Denver	Denver
Van Meter, S. D.	Denver	Denver	Young, H. B.	Denver	Denver
Van Stone, L. M.	Denver	Denver	Zener, Mary L.	Boulder	Boulder
Van Stone, W. D.	Denver	Denver	Zillman, O. E.	Manzanola	Otero
Van Zant, C. B.	Denver	Denver	Zimmerman, Wm.	Denver	Denver
Vogt, H. J.	Pueblo	Pueblo	Zinke, Wm.	Collbran	Mesa
*Von Der Smith, P.	Denver	Denver			
Vroom, J. N.	Denver	Denver			

\*Deceased.



**MINUTES OF THE FIFTY-FIRST ANNUAL SESSION OF THE COLORADO STATE MEDICAL SOCIETY, HELD AT PUEBLO, COLORADO, OCTOBER 5, 6, AND 7, 1921.**

(Papers and discussions which formed the scientific program of this session will appear in Colorado Medicine in succeeding issues of 1921-1922).

**October 5—First Day—Morning Meeting.**

The Society was called to order at 10 o'clock a. m. by the President, Dr. F. R. Spencer.

The President opened the meeting by a few remarks in expression of his appreciation of the co-operation he had received in the conduct of the affairs of the Society. He further expressed the thanks of the Society to the Pueblo County Medical Society for the spirit exhibited in continuing and carrying out plans for this meeting in spite of the difficulties which the Pueblo flood imposed upon it. The president-elect, H. A. Smith, was then inducted into office as president for the ensuing year and assumed the chair.

Dr. Hubert Work was called upon to address the Society and responded both in his capacity as President of the American Medical Association and as a local member of the Pueblo County Medical Society. Following this extemporaneous address, Dr. Alexander R. Craig, a guest from the American Medical Association, having been requested to address the Society, responded in his official capacity as secretary of that Association and as a member of the Illinois State Medical Society by extending the respects and the desire for cooperation of those two organizations.

Dr. Wm. F. Singer then upon request gave a short talk which was devoted to welcoming the members in behalf of the Pueblo County Medical Society.

The scientific program was then begun:

C. D. Spivak, Denver, gave an extemporaneous address on Medical Coloradoana, which was discussed by A. C. McClanahan.

A paper on The Present Status of Diphtheria, by M. R. Fox, Sterling, was submitted by J. C. Chipman, the author being absent. After debate, the author's absence being considered excusable, and on motion duly carried, the paper was ordered read by title.

F. P. Gengenbach then read a paper on the subject of Feeding the Newborn Infant. The paper was discussed by Drs. Friedman, Blickensderfer, Timmons, Gilbert, Tremaine and by Dr. Gengenbach in closing.

Elmer L. Timmons, Colorado Springs, then read a paper entitled Malnutrition in Infancy and Childhood. It was discussed by Drs. Gengenbach, Tremaine, Boyd, Hubert Work, Chipman, Friedman and Timmons.

Robert G. Packard, Denver, read a paper on The Removal of the Astragalus in Old Cases of Infantile Paralysis, which was discussed by Drs. H. W. Wilcox and Fossdick Jones.

John R. Espey, Trinidad, read a paper on The Diagnosis and Treatment of Gall-Bladder Affections, which was discussed by Drs. O. M. Gilbert, Mayhew, Buchtel, Spivak, Stoddard and by Dr. Espey in closing.

**First Day—Afternoon Meeting.**

The Society reconvened at 2 o'clock p. m., and the scientific program was begun with an address by Dr. Frederick W. Bancroft, New York, entitled, Bone Repair Following Injury and Infection, admirably illustrated by numerous lantern slides. The address will be published in Colorado Medicine. By courtesy of the author, the address

was opened to discussion and was discussed by Drs. Edson, Jones, Grant, J. F. Golden of Chicago and by Dr. Bancroft in closing.

C. E. Tennant, Denver, then read a paper on Joint Injuries With Special Reference to Fractures Extending Into the Joint. The paper was discussed by Drs. Grant, Miel and by Dr. Tennant in closing.

George A. Boyd, Colorado Springs, next read a paper on The Anatomical and Functional Differences of the Germ and the Somatic Cell. The paper was discussed by Drs. Hillkowitz, Grant, Robert T. Frank and by Dr. Boyd in closing.

Philip Work, Pueblo, read a paper on Some Considerations of Spinal Cord Tumors, which was discussed by Drs. Moleen, McKinnie and by Dr. Work in closing.

John B. Hartwell, Colorado Springs, read a paper on Trichomonas Vaginalis Vaginitis, which was discussed by Drs. Edson, Gengenbach, Boyd and by Dr. Hartwell in closing.

R. T. Frank, Denver, read a paper on Early Diagnosis and Treatment of Cancer of the Uterus, which was discussed by O. M. Gilbert, who made the following incidental motion:

"Mr. Chairman, I move that the Colorado State Medical Society go on record as approving most heartily the work of the American Society for the Control of Cancer and promise their fullest co-operation in this matter of prevention of cancer."

The motion being regularly seconded and put to a vote, was carried.

The paper was then further discussed by Drs. Grant, Green, Boyd, Singer, Masson, Walt of Little Rock, Ark., and by Dr. Frank in closing.

**October 6—Second Day—Morning Meeting.**

The Society reconvened at 10 o'clock a. m. Dr. Smith then called the attention of the members to an exhibit in the corridor, given by Dr. C. R. Gowen of Denver, consisting of paraffin casts of various organs of the body which showed the blood and lymph circulatory structures, stating that the work was of an entirely original character upon which Dr. Gowen was not yet prepared to make a complete or formal report, but that this was in the nature of a preliminary announcement of his work.

Dr. John F. Golden, honor guest from Chicago, next gave an address on Bone Surgery, illustrated with lantern slides, which by courtesy of the speaker, was put before the Society for discussion, and was discussed by Drs. F. W. Bancroft, Stephenson, Grant and by Dr. Golden in closing.

The time for adjournment having arrived, upon debate, Dr. W. W. Grant, Denver, was allowed to read his paper, entitled, "The Acute Abdomen". Discussion of this paper was deferred, by agreement of the members present, to take place later if occasion presented.\*

**Second Day—Afternoon Meeting.**

The Society reconvened at 2 o'clock p. m., and on motion duly seconded and carried it was decided to resume the schedule of the printed program. By consent, the Secretary read a telegram from Dr. Holman Taylor, Secretary of the Texas State Medical Society, addressed to Dr. G. T. Vinyard, viz: "You have been appointed fraternal delegate to the Colorado State Medical Society and this telegram will serve as your credentials. President Dr. Bennett requests you to extend to the profession of Colorado the warmest greetings and best wishes for successful meeting and prosperous future."

President Smith: Gentlemen, this is our fraternal delegate from the state of Texas.

\*Discussion of this paper was called for at the afternoon meeting. There was no response.



Dr. Vinyard: Gentlemen, I just arrived here about the noon hour, at the time you were to go to lunch. I have enjoyed being with you very much, and I feel that I will enjoy the rest of my stay.

Vice-President Gillaspie having been called to the chair, President Smith delivered the presidential address, entitled, "The Doctor and the Commonwealth." The address will appear in full in the October, 1921, issue of Colorado Medicine.

Dr. James C. Masson, honor guest from Rochester, Minn., then addressed the Society upon the subject, "Diverticulitis of the Large Bowel". The address will be published in Colorado Medicine.

William M. Spitzer, Denver, then read a paper entitled, "Median Bar Formation."

On motion, Dr. Spitzer was permitted to show the lantern slides in connection with his paper in place of discussion.

H. T. Low, Pueblo, read a paper entitled, "Cystitis and Its Diagnosis." Dr. Low's paper was then opened for discussion along with Dr. Spitzer's; discussion by Drs. Freeman, Lyons and by Dr. Spitzer in closing.

By consent of the members, Dr. C. N. Meader then gave a short talk before the Society, explaining the plans of Colorado University for raising a fund of \$200,000 through a "dollar campaign" to complete a \$1,500,000 fund otherwise already provided for by the state of Colorado and the Rockefeller Foundation, to be used for the erection of a new state medical school and state hospital; the campaign being necessary this fall, if at all, because the Rockefeller Foundation's offer, which hinged on its consummation, was effective only until spring.

O. S. Fowler, Denver, then read a paper on Restoration of Function in Hydronephrosis, which was not discussed.

The President then called for discussion on the paper of W. W. Grant, read at the morning meeting. No discussion followed.

H. R. Bull, Grand Junction, then read a paper on Extra-Uterine Gestation, which was discussed by Drs. F. W. Bancroft, Stoddard, Gilbert, Hall, Freeman and by Dr. Bull in closing. By consent of Dr. Bull, discussion of his paper was reopened and Drs. Fowler and Masson participated.

Leonard Freeman, Denver, then read a paper entitled, "On the Co-incidence in the Same Patient of Gall-Stones and Kidney Stones." The paper was discussed by Drs. Spitzer, Hilikowitz and Edson and by Dr. Freeman in closing.

T. E. Carmody, Denver, next read a paper on Treatment of Non-Tuberculous Infections of the Chest Following Infections From the Respiratory Tract. This paper was discussed later in connection with that of M. D. Brown.

#### October 7—Third Day—Morning Meeting.

The Society reconvened at 10 o'clock a. m., and the scientific program was continued.

M. D. Brown, Denver, read a paper on Relations of Infections of the Upper Respiratory Tract to Non-Tuberculous Infections of the Chest. This paper and that of T. E. Carmody, read the afternoon before, were then discussed together by Drs. Spitzer, Minnig, Smith, Levy, Pattee and by Dr. Brown in closing.

J. A. McCaw then read a paper entitled, "A Case of Orbital Cellulitis Involving Both Orbits With a Thrombophlebitis of Retro-Orbital Veins Caused by Interstitial Gingivitis of the Front Teeth". The paper was discussed by Drs. Jackson, Smith, Black, Spencer and by Dr. McCaw in closing.

Leo Williams Bortree, Colorado Springs, read a paper on Addison's Disease, which was discussed

by Drs. Downing, Stephenson, Singer and, in closing, by Dr. Downing.

H. M. Thompson then read a paper written jointly by himself and J. W. Thompson, entitled, "Capsulotomy Versus Intracapsular Method in Senile Cataract Extractions". The paper was discussed by Drs. Black, Spencer, Pattee, Jackson, J. W. Thompson, Crisp, Wallace, Smith and by H. M. Thompson in closing.

L. T. Richie, Trinidad, read a paper on the subject, "Pneumococcus Mastoiditis Without Otitis Media", which was discussed by Drs. F. L. Dennis and Spencer.

H. A. Black, Pueblo, read a paper entitled, "Chorio-Epithelioma With Report of Cases". The paper was discussed by Dr. Bortree.

#### Third Day—Afternoon Meeting.

The convention was called to order at 2 o'clock p. m.

The secretary then presented to the convention a detailed verbal report of the proceedings of the House of Delegates.\*

A report of the Committee on Necrology was called for. The chairman of that committee not being present, the report was passed and ordered to be printed as a part of the proceedings of the general session.

Dr. Maurice Levy, Denver, read a paper on Indiscriminate Diagnosis of Tuberculosis. The paper was discussed by O. M. Gilbert.

Lorenz W. Frank, Denver, next read a paper on Chronic Non-Tuberculous Pulmonary Suppurations. The paper was discussed by Drs. Giese, Gilbert, Downing, Minnig, Lyon and by Dr. Frank in closing.

Harry Gauss, Denver, read a paper on The Influence of Carbon Dioxid on the Tubercle Bacillus. The paper was discussed by Drs. Little, Downing, Singer, Gilbert and by Dr. Gauss in closing.

The scheduled paper of M. O. Shivers, entitled, "Pulmonary Abscess, Tuberculous and Non-Tuberculous", was then called for. There being no response, the reading of that paper was passed.

J. L. Mortimer being unable to attend the meeting, his paper was submitted through the Secretary and was ordered read by title.

President Smith then made a few closing remarks, in part as follows: "I want to thank you each, individually, for the support you have given this program which has been put on. I think the Program Committee has done exceptionally well. I do not believe that the State Society at any meeting which I have attended, has had a better program than this has been. A man called me out into the hall and told me that he had attended the medical societies in the state of Ohio for twenty years in succession, and that he considered this the best program he has ever listened to."

The fifty-first session then adjourned to meet at Colorado Springs in 1922, sine die.

The Report of the Committee on Necrology, which was not read at the meeting, but was ordered to be incorporated in the minutes, is here appended:

The Committee on Necrology desires that you note the following instances of death among the members of the Colorado State Medical Society. It seems probable that, due to inadequate methods of compilation, some names may have been omitted.

#### Denver County.

William Drechsler, December 22, 1920.

\*The full proceedings of the House of Delegates appear in the November, 1921, issue of Colorado Medicine.



William S. Duboff, February 7, 1921.  
 Stanley Eichberg, March 25, 1921.  
 Charles Arthur Ellis, March 7, 1921.  
 Frank Clair Kennelly, December 5, 1920.  
 Edwin James Rothwell, September 7, 1920.  
 Pierre Von der Smith, February 14, 1921.  
 Michael D. Healey, June 24, 1921.  
 Charles A. Ferris, February 1, 1921.  
 Edward L. Fitch, September 1, 1920.

#### Boulder County.

Vivian Russel Pennock, August 19, 1921.

#### Lake County.

A. M. Maclean, April 20, 1921.

#### Chaffee County.

Finla McClure, July 18, 1921.

#### Kit Carson County.

Earl R. Nutter, Joes, Colo., November 5, 1920.

#### Huerfano County.

Robert Durnell, August 18, 1921.

#### El Paso County.

J. H. Ferguson, December 4, 1920.

It seems fitting as the year turns on its course that we pause this brief time to regret the ravages of age, to deplore the havoc of disease and to lament the misanthropy of chance, which, during the past twelve months have thinned our ranks.

For this occasion mere mention of the deceased must suffice, even though we realize that our warm friendships, our admiration, our respect for accomplishment, our appreciation of endeavor and our sympathy in suffering all demand that we lament without ceasing these, our departed brothers.

And while we mourn the dead, may we not also remember the living? May we not say to the many grieving relatives and friends: "We also knew them; we also loved them. We mourn with you."

CLAY E. GIFFIN, Chairman.

C. E. COOPER,

E. L. MORROW.

F. B. STEPHENSON, Secretary.

## Medical Societies

### COLORADO NEUROLOGICAL.

The regular meeting of the **Colorado Neurological Society** was held Saturday, Nov. 19, at the University Club, Denver. Dr. George A. Moleen presided.

Dr. Leo V. Tepley presented a paper on *The Present Status of Opinion on the Treatment of Neuro-syphilis*.<sup>\*</sup> The salient points of the paper are as follows: All workers agree that neuro-syphilis takes place in the earliest period of the secondaries. Positive Wassermanns were found on the cerebro-spinal fluid by different investigators in proportions varying from 10% to 70%.

Pathologists generally agree that neuro-syphilis is primarily a disease of the blood vessels. The process begins as an inflammation of the perivascular lymphatics and ends as an obliterative endarteritis.

Arsenic in one form or another is absolutely indispensable to the efficient treatment of neuro-syphilis.

This should always be preceded by a course of mercury and iodide. Brief treatment by arsenic is dangerous as the spirochetes become tolerant and arsenic-fast.

There are various conflicting views as to the significance of positive laboratory findings after clinical symptoms have subsided. There is a preponderance of opinion that treatment should not be continued indefinitely merely to obtain negative laboratory tests.

The Swift-Ellis-Ogilvie followers adhere to intraspinal treatment, first giving arsenic intravenously, then withdrawing the blood, separating the

serum, fortifying it with arsenic and finally injecting it into the spinal canal after preliminary drainage.

Dercum holds that intraspinal treatment has no efficacy and that any benefit derived from it is due solely to the withdrawal of the fluid. This withdrawal of the fluid results in mild hyperemia of the brain and cord, and in addition effects a form of spinal lavage.

Dr. Howell T. Pershing expressed a preference for mercurial inunctions over intramuscular injections inasmuch as the action of the former could be better controlled. He approved of the use of mercury to the point of easy tolerance. Mercury should be supplemented by iodide and later by arsenic. The old salvarsan was better than the new salvarsan. He regretted that salvarsan was not prepared in such a manner as to permit slow absorption. He thought that in earlier work better results had been obtained with hypodermic injections of salvarsan though this had since been discarded on account of abscesses and sloughs that resulted.

Dr. Neuhaus thought that absorption of mercury could be well controlled with intramuscular injections of salicylate, though he had been unable to do this with gray oil. Gray oil induced nodules, apparently sterile abscesses in the muscles, and was on this account objectionable. He expressed a preference for Dercum's method of treatment consisting of spinal drainage after intravenous administration of salvarsan. In two or three instances he had seen sphincter disturbances develop following the Swift-Ellis treatment.

Dr. Lazell thought that the Wassermann test was worthless and that mercury, iodide and salvarsan were useless in the treatment of syphilis. He thought the most effective treatment consisted of hypodermic injection of luetin. He gave this in gradually increasing doses, which in some instances reached 2 cc.

Dr. Delehanty spoke of the dangers of the Swift-Ellis treatment and cited a case of paresis in which the patient died in convulsions shortly after intraspinal administration of serum.

Dr. Moleen emphasized the importance of spinal fluid tests in diagnosis. The spinal fluid might be positive when the blood serum was negative. He approved of intensive mercurial treatment and by preference used the 50% ointment. The patient should avoid organic acids, as in fruits, since these acids induced ptialism. He had never seen a case in which the gums were touched provided the patient observed this precaution. In case of neuro-syphilis where the sphincters were disturbed, marked benefit resulted from the use of rectal suppositories containing 50% mercury.

Dr. Stevens reported a case of encephalitis in a school girl. The early symptoms were pain over the left brow and numbness of the left side of the face. Vertigo, nausea and vomiting were present. There was slight stiffness of the neck on forward flexion of the head. There was horizontal nystagmus to the right and rotary nystagmus on looking up. There was slight haziness of the nasal halves of the optic discs. The knee jerks were exaggerated. The plantar reflexes were normal and there was no Kernig sign. The patient showed rapid improvement.

Dr. Moleen reported a case of fracture of the skull in a young man of 17—the fracture occurring in an accident in which the head was caught between a locomotive engine and the tender. The patient heard the head crack, but although dazed he was not unconscious and was able to cry for help. Double vision and immobility of both sides of the face were noticed immediately after the accident. The right eye remained closed and the left eye open. Later he became unable to close either eye. There was no disturbance of speech or swallowing. Hearing was slightly impaired in the left ear and much impaired in the right. Bloody vomiting occurred every fifteen minutes. There was slight headache for the first two nights. Gradual improvement followed.

Examination three weeks after the accident showed impairment of hearing. There was moderate convergent squint and neither eye could be closed. Patient could wrinkle the brow only on the right side and this only slightly. The corners of the mouth could not be voluntarily retracted. There was slight retraction of the right side on emotion. The tongue was protruded in the mid-line. Masseters and pterygoids acted normally. Soft palate normal. Upper extremities normal. Knee jerks increased; right more than left. Right Achilles reflex exaggerated. No ankle clonus.

Both eyes showed moderate convergence at rest. The right eye failed in outward rotation beyond the mid-line, left outward rotation was limited.

<sup>\*</sup>Dr. Tepley's paper will appear in full in a later issue of *Colorado Medicine*.—Ed.



Convergence was well accomplished. The left pupil was larger than the right but both pupils reacted to light and convergence. Optic fundi normal.

Diagnosis—Pressure on pons, probably the result of blood from fracture of basilar process.

Discussion of the psychopathic hospital followed. Dr. Howell T. Pershing thought that the dispensary for cut-patients should be adjacent to the hospital as a matter of general convenience, and facilitate admittance of patients to the hospital. This would also offer advantages in teaching.

Dr. Moleen emphasized the importance of having clinical rooms in the hospital itself and thought that the ward should not contain more than four or five beds.

Dr. Tenney emphasized the importance of privacy for dispensary patients. He thought that adequate histories could not be obtained when the patients knew they were overheard.

C. S. BLUEMEL, Secretary.

#### COLORADO OPHTHALMOLOGICAL.

The regular meeting of the Colorado Ophthalmological Society was held on October 15, 1921, in the assembly hall of the Medical Society of the City and County of Denver, Dr. F. R. Spencer presiding.

E. T. Boyd, Denver, presented a case of traumatic iridodermia in a man aged twenty-eight years whose right eye had been struck with great force by the chain of a chain pulley. After absorption of the blood in the anterior chamber it was apparent that absolutely no iris tissue remained except a small tag engaged in the wound. Discussed by E. R. Neepner, D. H. Coover, and G. F. Libby.

H. Darrow, Denver, presented by invitation a man aged forty-five years, who for eighteen months had been under the care of various physicians on account of a severe inflammatory condition involving first the right and later the left eye. The cornea was generally cloudy and there were localized opacities, which were approached by fine bloodvessels. The vision was greatly reduced. A diagnosis of corneal tuberculosis had been made, and the patient had been put on injections of tuberculin, beginning with a very small dose and gradually increasing. Discussed by E. T. Boyd, F. R. Spencer, G. F. Libby, A. C. Magruder, and W. H. Crisp.

W. C. and W. M. Bane, Denver, again presented a man they had shown in February, 1921, on account of an injury to the left eye by a splash of hot welding compound. After an interval of nine months, so little deformity had resulted that it seemed unnecessary to consider any plastic surgery for the case. Discussed by J. M. Shields and E. R. Neepner.

W. C. and W. M. Bane, Denver, again presented a patient whom they had previously shown on account of an epithelioma of the lower eyelid, removal of the growth having been followed by the use of radium. In the course of about nine months there had been no recurrence.

F. L. Beck, for G. L. Strader, Cheyenne, Wyoming, presented a man aged seventy-five years, who had come on account of a growth on the right eyeball which had started about a year previously. There was a broad elevation in the conjunctiva, extending about half way around the cornea, and averaging about five mm. across from the limbus to the outer edge of the growth. The corneal epithelium was involved throughout. The condition was diagnosed as epithelioma of the conjunctiva. Discussed by F. R. Spencer, E. R. Neepner, W. A. Sedwick, H. M. Thompson, J. M. Shields, and A. C. Magruder; the general opinion being in favor of radical operation, preferably exenteration of the orbit.

F. R. Spencer and C. L. La Rue, Boulder, presented a young man aged nineteen years, in whom alternating convergent strabismus of approximately twenty-five degrees had been corrected by advancement of the left external rectus according to Worth's method, and in whom it had subsequently proved necessary to correct a low difference of refraction between the two eyes, as the patient stated that he used his right eye for near vision and his left eye for distant vision.

D. G. Monaghan, Denver, presented a man aged forty-six years who had been under treatment in October, 1920, on account of a severe disturbance of the right cornea, stated to have followed collision of the eye with an insect. The patient returned in June, 1921, on account of a recurrence of inflammation. The cornea was smoky and rough. In spite of removal of the only source of focal infection which could be found, namely several teeth, the condition became steadily worse. An abscess would form in the corneal substance,

would rupture, and the break would heal over. A variety of forms of treatment had been employed, but the vision was nearly gone. Discussed by W. C. Bane, D. H. Coover, and E. T. Boyd.

WM. H. CRISP, Secretary.

#### FREMONT COUNTY.

The regular meeting of the Fremont County Medical Society was held in the office of Dr. V. A. Hutton, Florence, on the evening of October 24, 1921, with a good attendance.

There were a number of interesting cases reported during the evening, and among them was that of a woman with acute perforating ulcer of the appendix which was successfully operated on five hours after the beginning of the attack.

Another case was that of erysipelas in a seven-months-old babe following an abrasion of the knee. The patient very sick and prognosis very bad. Another was angioneurotic edema following miscarriage, with subsequent death from myocarditis. The patient weighed 240 pounds but was otherwise healthy, and the reason for the fatal complication was not understood.

Reference was made to a four-year-old boy with acute laryngo-tracheal diphtheria, resulting in death within twenty hours from the inception of the attack in spite of antitoxin, intubation and tracheotomy.

R. C. Adkinson exhibited an x-ray negative showing a bullet in the lower end of tibia which had split, and a resulting abscess failed to heal until the portion embedded in the bone was removed. A small piece was left in the soft tissues, as it was doing no harm.

W. T. Little read a complete and concise paper upon "Urinary Gravel" with the exhibition of specimens.

OTIS ORENDORFF, Secretary.

A regular meeting of the Fremont County Medical Society was held in the office of Dr. V. A. Hutton November 28, 1921. The following members were present: Drs. Adkinson, Hutton, Rupert, Moore, Holmes and Orendorff.

Dr. Holmes reported the complete recovery of a baby afflicted with erysipelas after the infection had extended to the entire body. This case was reported at the last meeting with a fatal prognosis.

Dr. Moore presented a male patient, thirty-nine years old, the diagnosis of whose disease rested between syphilis of the nervous system and encephalitis lethargica.

Dr. Hutton presented a young man with arrested phthisis, exhibiting the benefit of hygiene and climate in treatment, as this patient was showing a marked gain in health. In the opinion of all members present it was advisable that the patient remain at home rather than be sent to a sanitarium.

As Dr. Moore's patient was improving under K. I. and mercury, it was agreed that this treatment be pushed regardless of the Wassermann reaction, but prognosis was grave.

Dr. Hutton read a splendid paper on the Schick test and toxin-antitoxin prophylaxis. This paper was short and to the point and very instructive. Details of the technic of these measures were given and comments made that the test was rather unreliable for the reasons that the potency of the product was uncertain, the personal factor was uncertain and the pseudo reaction was liable to be misleading. The benefits of the toxin-antitoxin were certain, apparently life long, but they do not begin until four or five weeks after the treatment.

A communication was read from the Pueblo County Medical Society extending an invitation to our members to attend their meetings, and the secretary was instructed to obtain details a sufficient time in advance of the next meeting in order that our members might make arrangements to attend if they so desired.

It was unanimously agreed to hold the next monthly meeting on the 19th instead of the 26th, and the secretary was instructed to arrange a dinner and a program; the members to pay for their own plates but the guests to be entertained at the expense of the society. The secretary was instructed to place upon the invitation list all of the dentists in the county and all of the new doctors not at present members of the society and also Drs. Cochems and Curfman of Salida.

The Cañon City members expressed appreciation of the splendid program provided by the Florence brothers, and the meeting adjourned at 11 o'clock.

OTIS ORENDORFF, Secretary.





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